

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, AUGUST 22, 1891.

NUMBER 1.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairman of Committee on Museums. Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director

THE SHORTER LECTURE COURSE.

BY PRES. GEO. T. FAIRCHILD.

WE clip from the *Fancier and Farm Herald*, Denver, the following comments because of their direct reference to this College, and give the argument in full because it is so well and kindly stated:—

At a meeting of the Kansas State Board of Agriculture early in the present year, ex-Governor Glick—himself a successful farmer and stock breeder—read a paper on what an agricultural college should be. It was followed by an extended discussion, in which President Fairchild of the Kansas State Agricultural College took a leading part, agreeing with the ex-Governor that agriculture should be the backbone of the course of study. From the remarks of President Fairchild the following is quoted:—

"You will find that the law of Congress which made appropriations to agricultural colleges explicitly made the statement as to what should be taught in those colleges under the guidance of the leaders of the National Grange, and that that was framed on the very ideal upon which we have been working for ten years certainly, and I think for the last fifteen. I say this not by way of an apology, but in addition to what the Governor has said it ought to be. I believe that it should be a farmers' college, and it does come not far from that now."

And being a "farmers' college," the agricultural college should not be less an institution where thorough discipline and the best possible training are to be had by the student who has the time and means to take a full course, but provision should be made, in addition to this, so that young men and young women who cannot or will not take a full course may have the privilege of a special course of study for three, six, or nine months, directly in line with what they specially need to know respecting farm and household work. Some would like to study special methods in general farming, in dairy work, in breeding and feeding stock; some would like to give attention to the history of the development of agriculture; some to study cooking and methods of household management under competent teachers. Of course the average young man or woman from the country schools is not capable of getting as much by far from such a special course of instruction as either would be able to get after a thorough preparation. But the desirable and the possible are quite different sometimes; and when the desirable amount of good cannot be done, is there any sufficient reason why the possible amount should not be done? So it is here urged that because many farmers cannot give their sons and daughters a full course at an agricultural college, the agricultural college should make provisions to teach the general facts of agriculture and household economy in a manner and at times to attract those who for one reason or another do not under present arrangements get the benefit of these excellent institutions. This is not a plea for the superficial in education. The writer has had occasion more than once to note the weakness and almost uselessness of persons with a smattering of science and the "humanities," and would be the last to counsel giving the student a few surface facts and inducing him to imagine himself "educated." But it is not pleading for the superficial and the shoddy to ask that the farmer's sons and daughters who must be deprived of a complete education shall have arranged for their help a short course of study that will give them in some degree the beginning of a training in line with their intended life work. Better a partial preparation than no preparation at all. And if the young man is taught something of the extent of what may be known, and if made to understand how little any one man does know, it will do him more good than to be able to read the "Anabasis" in the original.

The evident need of fuller information among the sons of farmers who cannot or will not take a course of study has always been apparent, and from the very beginning of agricultural colleges, experiments have been tried in furnishing winter courses of lectures, but to this day they are still experimental, seldom sought by the class of young men for whom they are specially designed. I believe the reason is to be found in the very nature of the case. Such information as can be given to students untrained in the elements of the sciences is furnished abundantly in the agricultural journals, reports, and bulletins throughout the country. That few young farmers make use of them as they might is due to the fact that experience has not yet made them feel the force of the new facts and their bearing upon personal duties. Training to think must precede training in useful thinking, and this comes either through long years of experience or through the processes of education in the elementary facts of thought. Ready-made information cannot be absorbed without the tilth that fits minds for absorbing. This has been proved in every effort—and there have been many—to substitute the shorter courses for farmers' children in the principles of their art. The same fact has appeared in attempts to cultivate other artisans without fundamental training.

There is, however, a small class of farmers who can make use of institute lectures to advantage. These are young men of fair common school training who have done their best for from five to ten years in farming, and with fair success. These

have learned their want of knowledge, and will contrive to master principles as well as facts, since their experience has given them a fair preliminary education. It is such men that profit by the farmers' institutes, and would, if they could at not too great expense, take four or six weeks courses at the College. Yet how many are there in the State of Kansas ready to leave family and farm for such a course? I venture to promise that every State Agricultural College will provide such a course whenever a class of twenty such men is available.

It may not be amiss to mention, in conclusion, the fact that the recent revival of this effort to give these shorter courses in agriculture has come from States where little or no provision for a real agricultural college exists. The test of thorough trial has proved that the surest way to learn how little a man can know is to begin at the bottom while seeing the steps up to the coveted knowledge. The fault with the shorter courses generally is that they are in no proper sense "the beginning of a training in line with their intended life," but are almost certainly a mass of information undigested and indigestible until an elementary training or a larger experience has prepared the mind to use it.

COLLEGE REPUTE.

Kansas has a State Agricultural College which does not suffer, as some Eastern institutions of the sort do, from lack of students. The enrollment the past year reached the high figures of 593, of which 343 belonged to the First-year class, and 135 to the Second-year, while there were 52 graduates. "Development marked the year in all departments," says the *Topeka Capital*. "In every department there were improvements in method or in tools, to the great advantage of the quality of work done. There is a new job press in the printing room, enlarged space and better arrangements for the carpenter shop, new work in the culinary department, increased room and facilities in the library, and so on. Everything of practical value is taught at the College; girls learn to sew and cook, and boys become proficient in all the mechanical labors of the skilled artisan." There is always much curiosity as to how many graduates of agricultural colleges become farmers. There have been 205 male graduates from the Kansas institution, of whom 35 are now farming, 56 "have to do with agriculture in some of its branches," 24 are mechanics, 25 are merchants, 3 are printers, 24 are teachers, 4 are physicians, 6 are editors, 3 are clergymen, and 17 are lawyers. Of the 70 women graduates, 31 are their own housekeepers and 38 are teachers.—*New York Post*.

In the revised course of study at the State Agricultural College for the new year beginning in September, no provision is made for instruction in the classics. This is wise, and will give general satisfaction. The instruction of that worthy institution is wholly English, and more every year is agriculture coming to be its chief object of study and experiment.—*Atchison Champion*.

The above shows that the *Champion* knows very little about the course of study at the Agricultural College. For the past fifteen years, ever since the College has been on a strictly agricultural basis, in fact, the classics have had no place in the course of study, which has been strictly scientific and industrial.—*McPherson Democrat*.

Our State Agricultural College is second to none, and is an honor to our State.—*McPherson Democrat*.

The State Agricultural College at Manhattan, Kansas, is doing excellent work. The tendency towards a neglect of religion in that institution is quite rapidly disappearing. The institution, under the management of President Fairchild, is pervaded with an excellent moral atmosphere and is doing good work. To a large extent manual labor is given with intellectual labor and hard study. The student can enter it and have not merely a theoretical knowledge of blacksmithing, carpentry, sewing, and cooking, but the teachers

in these several departments take those who are disposed to do so into the work-shop or the kitchen; not merely tell them how to do the work, but give them a chance at the work until they are experts. It is not expected that pupils will be compelled to do work enough to support themselves, and at the same time do as much studying as they would be compelled to do if they had nothing to do but study. What is done is to divide the time between study and work, so that the best use of the pupil's time may be secured, and that when the graduates leave the institution they shall be well up in the line which they may have pursued.—*St. Louis Mid-Continent*.

The twenty-eighth annual catalogue of the Kansas State Agricultural College is at hand. Its contents are each year increasingly interesting. The Agricultural College is a model Kansas school, combining intellectual and industrial training; practical in every sense of the word.—*Cawker City Record*.

The Kansas State Agricultural College, at Manhattan, holds its commencement exercises from June 7th to 10th. This institution is one of the grandest in the State, and its exercises commencement week are highly entertaining, and draw a large attendance.—*Kinsley Graphic*.

In the graduating exercises that occurred Wednesday at the Kansas State Agricultural College, at Manhattan, Kansas City, Kansas, is represented in a way quite unusual by the graduation of three native-born Kansas members of one family; viz., the only son and two daughters of Mr. and Mrs. F. D. Coburn. We are not aware of such an occurrence before at any educational institution in this State, and do not call to mind any account of a like event elsewhere.—*Kansas City Gazette*.

The fact that Mr. Coburn was Regent of the college for some years, editor of the *Kansas City Live Stock Indicator*, and a gentleman who has traveled much, is well posted on all matters of education in this and Eastern States, and that he should select our State Agricultural College as the place to educate his children, when his pecuniary circumstances were not a matter of consideration, are something that Kansas farmers, and Kansas citizens generally, should take with some weight. The Kansas State Agricultural College stands as the foremost and best managed institution of its class in the United States without exception among all those (one in each State) for which Congress in 1862 made ample provision.—*Function City Union*.

COMPLIMENTARY TO KANSAS.

In an editorial article on the "Agricultural School System," the *Washington Post* notes the fact that "the colleges which have been established in almost all of the States of the Union for the advancement of agricultural knowledge, and for the instruction of pupils in the theory and practice of farming, are little appreciated by the great bulk of that class for whose benefit they were specially instituted." The cause of the unpopularity of agricultural colleges is ascribed by the *Post* to the natural conservatism of farmers and their disinclination to take up with new methods. They become accustomed to handling the same line of crops, to adopting the same scheme of rotation, and to employing each season the same stereotyped processes from seed time to harvest. They look upon "book farming" with distrust, and regard experiments and innovations with suspicion.

The *Post* compliments Kansas by singling out as an exception to the rule which it notes the Agricultural College at Manhattan, which had an enrollment last year of 593 students. The success of this institution is due to two causes—the excellence of the school and the peculiar spirit of the Kansas people. The course of instruction is so complete that students may not only become proficient in the branches of an ordinary and agricultural education, but they may also acquire a knowledge of the mechanical arts, and the duties pertaining to the management of a household. The boys have the opportunity of learning trades, and the girls are taught cooking and sewing, and become skilled in domestic work of all kinds. This method of training is particularly adapted to the needs of Kansas, and as a consequence the school is liberally supported and well attended. It is growing in influence and power, and is probably the most successful and prosperous institution of the kind in the country.

The experimental department of the Kansas Ag-

ricultural College has been of the greatest possible value to the State, and its importance is fully appreciated. It has aided materially in popularizing progressive agriculture and in the establishment of new methods which have simplified the work of the farmer and made his labor more remunerative. The hostility to innovations, to which the *Post* attributes the general failure of agricultural schools, does not exist in Kansas. The people of that State are notably hospitable to new theories and enter with alacrity upon new experiments. The standard of intelligence is high, and anything which implies advancement and progress is certain to receive encouragement. This willingness on the part of the Kansas people to welcome the most recent developments of applied science and all of the latest novelties in practice, has done much to insure the gratifying success which distinguishes the school at Manhattan from other agricultural colleges in the country. It is a condition which can scarcely be appreciated by a person who is not familiar with the Kansas people and who has not felt the infection of their energy and enthusiasm and their great pride in everything which contributes to the glory and prosperity of the State. The *Post* would find it deeply interesting to study the peculiar causes which have insured the superiority of the institution which it compliments so highly.—*Kansas City Star*.

Yet the *Practical Farmer* says: "Unless the State Agricultural colleges show a large increase in the attendance of agricultural students in the next eighteen months, one of the most curious exhibits that could be made at the Columbian Exposition in 1893 would be such a student from one of these colleges."

VALUE OF HAND WORK.

One token of advancing intelligence in civilized nations, and especially in our own, is the increasing respect paid to hand work. The foolish contempt in which it was once held has, to a great extent, passed away, and the skilled workman now receives a degree of honor and consideration that would formerly have been thought absurd. Even now, however, the division is strongly marked between the hand-worker and the brain-worker, and while both are respected, the latter is usually supposed to occupy a higher level than the former. His efforts, it is assumed, are directed to the higher life of man, while those of the former are directed chiefly to supplying his material wants. Thus they are not expected to make any invasions on each other's territory, and the excessive division of labor intensifies the distinction. The separation, however, is perilous to the interests of both. Mr. Ruskin says: "We want one man to be always thinking, and another to be always working, and we call one a gentleman and the other an operative, whereas the workman ought often to be thinking and the thinker often to be working, and both should be gentlemen in the best sense. * * * It is only by labor that thought can be made healthy, and only by thought that labor can be made happy; and the two cannot be separated with impunity." One half of this truth is becoming very generally realized, hence the spread of praiseworthy efforts to educate the whole people. That hand-workers should have their knowledge increased, their thoughts aroused, their minds developed, is now admitted by all intelligent persons, and the facilities for this are constantly multiplying. But it is not yet so manifest that those whose ordinary occupation taxes their brains rather than their muscles require the other kind of development. Yet they do need it, even for the best success in their special employment. Dr. Brown-Sequard, an authority on the brain, is said to have affirmed that "the left side of the brain, which co-operates with the right hand, is more fully developed than the right side of the brain which corresponds with the left hand."

Evidently this is due to the greater exercise which is given to the right hand, and if it shows anything it is the development of the brain. This is not strange when we remember that manual dexterity in any province requires the exercise of many faculties. The observant eye, the enforced attention, the act of comparing and weighing and deciding, the habit of perseverance, the unwearying repetition in order to obtain excellence, are all

efforts of the brain, and yet no good hand-work can be accomplished without them. The fact is that manual work, and what we call mental work, are far more closely allied in their operations, and more inter-dependent than we are accustomed to consider them; and we none of us know how much thought itself, and all mental work, are improved and strengthened by the very efforts which are put forth in the interests of manual employments. Not only the brain, however, but the moral sense, the heart and the life itself, are all purified and strengthened by the conscientious performance of hand-work. It is said that a large proportion of the inmates of our prisons are ignorant of any handicraft, and doubtless this ignorance has a share in leading them to the commission of the crimes for which they are confined. Industry drives away a multitude of evil suggestions that find an easy lodgment where there are idle hands. Doubtless the knowledge of a trade, bringing with it self-respecting habits, has saved many a youth from temptation and influences which would have been his ruin. Apart from this, however, the happiness, the independence, that results from some knowledge of hand-work, are invaluable to every one. If it be the daily occupation, intelligently pursued and well informed, it is a foundation on which the promotion of the worker is only limited by his industry and talents. Many of the most eminent and useful men have begun their lives in this way, and all their prosperity and value can be traced back to the thorough knowledge and skillful pursuit of some branch of manual work. If, however, the life work lies in quite a different direction, the possession of some manual ability will still be of incalculable value. Deft and skillful fingers are a blessing to any man or to any woman.—*Philadelphia Ledger*.

AGRICULTURAL EDUCATION.

In the course of a paper before the Easingwold (England) Chamber of Agriculture, the following characteristic letter from Professor Huxley was read:—

"I am afraid that my opinion upon the subject of your inquiry is worth very little, my ignorance of practical agriculture being profound. However, there are some general principles which apply to all technical training. The first of these, I think, is that practice is to be learned only by practice. The farmer must be made by thorough farm work. I believe I might be able to give you a fair account of a bean plant, and of the manner and condition of its growth, but if I were to try to raise a crop of beans, your club would probably laugh consumedly at the result. Nevertheless, I believe that you practical people would be all the better for the scientific knowledge which does not enable me to grow beans. It would keep you from attempting hopeless experiments, and would enable you to take advantage of the innumerable hints which Dame Nature gives to people who live in direct contact with things. And this leads me to the general principle which I think applies to all technical teaching of school boys and school girls, and that is that they should be led from the observation of the commonest facts to general scientific truths. If I were called upon to frame a course of elementary instruction preparatory to agriculture, I am not sure that I should attempt chemistry, or botany, or physiology, or geology, as such. It is a method fraught with danger of spending too much time and attention on abstractions and theories, on words and notions, instead of things. The history of a bean, of a grain of wheat, of a turnip, of a sheep, of a pig, or of a cow, properly treated—with the introduction of the elements of chemistry, physiology, and so on as they come in—would give all the elementary science which is needed for the comprehension of the processes of agriculture in a form easily assimilated by the youthful mind, which loathes anything in the shape of long words and abstract notions; and small blame to it!—*Orange Judd Farmer*.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen, laboratory and dairy.

CALENDAR.

1891-92.
 Fall Term—September 10th to December 18th.
 Winter Term—January 5th to March 25th.
 Spring Term—March 28th to June 8th.
 June 8th, Commencement.
 1892-93.
 Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Mrs. Breese spends August with her parents in Chase County.

Send in your subscription money. We want a large paid list this year.

Mr. and Mrs. Gundaker spent two weeks of this month in Pennsylvania.

In the absence of her father, Edith Lantz has spent her forenoons in the Library.

Assistant Chemist Willard a few weeks ago treated himself and family to a horse and phaeton.

Friends will be pleased to learn of Mrs. Willard's improved health which promises to be permanent.

Prof. Walters is building a large addition to his already comfortable house under the shadow of Blumont.

Prof. Walters has lectured this summer before the teachers' institutes of Franklin, Russell, and Ellis counties.

Professors Walters and Olin are contributors to the new Kansas magazine, the *Agora*, published quarterly at Salina.

Prof. and Mrs. Georgeson attended the meeting of the Alumni Association of Michigan Agricultural College last week.

Notwithstanding the bountiful yield of fruit, there has been little waste, a market having been found for nearly all of it at fair prices.

Prof. and Mrs. Olin, after attending the Teachers' Association at Toronto, visited relatives in Ohio. They are expected home soon.

Prof. Lantz lectured last week before teachers' institutes at Colby, Atwood, and Goodland, and thence proceeded to Colorado for a short visit.

Mr. McCreary and family found a week of interest with relatives in Dubuque, Iowa. Mrs. McCreary and children will remain there several months.

Regent Hessin and Professor Popenoe were delegates to the meeting of the National Association of Experiment Stations held last week in Washington.

Prof. Nichols, after two months' visit in Clayton County, Iowa, with Mrs. Nichols, is home again, leaving his wife to spend the heated season with relatives in Chicago.

The new roofs of steel-tin Cortright shingles were in place before the hot wave reached us. A dressing of drab paint is a decided improvement over red, the original color.

Mrs. Winchip has spent most of the summer at home with occasional visits to Topeka sandwiched between periods of work. She is now spending two weeks among the mountains of Colorado.

Word comes across the mountains that Mrs. Kedzie and Miss Tunnell are enjoying to the fullest extent their visit in the Golden State, whose attractions they find second only to those of Kansas.

President and Mrs. Fairchild returned the last of July from a four weeks' visit in Ohio, New York, and Michigan. They were also present at the meeting of the National Educational Association at Toronto.

After eight years' faithful service as Botanist, Prof. W. A. Kellerman leaves the College to take up work in another field, having been elected, in July, to the Chair of Botany in Ohio State University, at a salary several hundred dollars in advance of that paid him here. He, with his family, removed to Columbus yesterday. Professor

Kellerman's efficient and conscientious labors during his term of service at this College have done much to strengthen the institution, and have won for him a national reputation in his line of work. A host of friends, while regretting the departure from their midst of his estimable family, wish them well in their new home.

The INDUSTRIALIST, after a rest of six weeks, resumes its weekly visits to thousands of homes in which it is a welcome guest. Half dollars will still be received in payment of subscription for the College year.

Mr. and Mrs. Mason attended the national convention of the Young Peoples' Society of Christian Endeavor at St. Paul, and later gained health and strength in camp on an island in Lake Minnetonka.

The new shop is growing slowly. Much of the iron work—all of which is supplied by a Berlin (Conn.) firm—was shipped from New York to Galveston by steamer, thence to Manhattan by the Santa Fe Railway. Some of the iron is yet on the road.

Prof. and Mrs. White returned three weeks or more ago from their wedding journey to Colorado, and are awaiting, with what patience they can command, the completion of their cosy new home on Houston Street, which they hope to occupy about the first week in October.

Prof. and Mrs. Hood are staying long enough in Yankeedom to acquire the nasal twang to be found in such abundance thereabouts; and as for "culchah," they ought certainly to imbibe it in sufficient quantities to carry them through another five years in the "wild and wooly west."

Prof. E. M. Shelton, formerly with the Kansas State Agricultural College, but now Instructor in Agriculture for the British Department of Agriculture at Brisbane, Australia, is doing some effective and valuable work, judging from the bulletins received at this office.—*Kansas Farmer*.

The Board meeting this week closed yesterday, having been occupied with routine work for two days. Regent Hessin failed to reach home before adjournment. Mr. James Rains, of Oberlin, O., was chosen Assistant in the English Department. A successor to Prof. Kellerman was not selected. Full proceedings will be given next week.

Prof. Lantz, Lieut. Bolton, Supt. Thompson, E. F. Nichols, '88, H. F. Roberts, Third-year in 1888-9, and C. S. Green, Second-year, spent a week in July on the banks of Rock Creek, in Lyon County, in pursuit of the finny tribe, which pursuit, it may be added, was abandoned before it was fairly begun on account of a heavy rain.

Prof. Popenoe visited Eastern Colorado in July with Prof. Snow to pass expert judgment upon the supposed grasshopper plague which threatened the West. As almost everybody knows before this, the Professors found the winged insects to be the native grasshopper, and not the much-dreaded Rocky Mountain locust.

Professors Failyer, Graham, and Breese will, it is thought, have any number of bear stories to tell when they return, about September 1st, from their month's stay in the mountains of northwestern Colorado in the vicinity of Trappers' Lake. They left Manhattan August 1st in company of Messrs. Wharton, Knostman, and Crise, with the necessary equipment to insure a comfortable outing.

The water closet and sewer system has engaged the attention of a large force for a month or more. Two large closets have been built adjoining the studies in the main building, and one each in the Chemical Laboratory, Mechanics' Hall, Botanical Laboratory, Horticultural Laboratory, and in the residences of the President and Professor of Agriculture. The large cess-pools, four in number, are built on the banks of the stream in the north-east corner of the grounds.

Western Resources, of Lincoln, Nebraska, dated June 10th, 1891, contains the paper read by Prof. Georgeson, of the College, before a meeting of the Improved Stockmen, held in Topeka, on the subject, "What does Science teach us in Stock Raising?" which should be in the hands of every stock feeder in the county. The paper contains many tables which are valuable to be kept for reference. Copies may be had by addressing Prof. Georgeson, Manhattan, Kansas.—*Daily Republic*.

GRADUATES AND STUDENTS.

C. J. Dobbs, '90, will teach at Meriden, Shawnee County.

J. W. Bayles, '89, will teach at Garrison the ensuing year.

O. L. Utter, '88, will teach in the Garden City schools next year.

G. E. Stoker, '90, plans a special course at Harvard next year.

H. W. Jones, '88, thinks of taking up post-graduate work this Fall.

Maude F. Sayers, '89, contemplates a post-graduate course next year.

Bertha H. Bacheller, '88, will teach the coming year in the Sterling schools.

Ada Rice, Second-year, has been elected Assistant Principal of the Clifton schools.

G. E. Hopper, '85, has the contract for the water closets and sewers at the College.

J. W. VanDeventer, '86, is in Denver, where matters typographical engage his attention.

H. N. Whitford, '90, has been employed as one of the teachers in the Manhattan schools.

Ella S. Child, '77, attended the meeting of the National Educational Association at Toronto.

The movements of the members of the Class of '91 will be recorded in these columns next week.

Florine Secrest, '89, writes from San Jose, Cal., of her intention to take a normal school course there.

Rumor has it that J. U. Higinbotham, '86, will return soon from Chicago and practice law in Manhattan.

F. J. Rogers, '85, will remain another year at Cornell, having accepted a position as Assistant in Physics.

H. F. Roberts, Third-year in 1888-9, is doing local writing for the new daily, the *Manhattan Nationalist*.

F. M. Jeffrey, '81, writes from Escondido, Cal., that he hopes to take a post-graduate course the coming year.

F. B. Elliott, '87, is with his brother and classmate on a hunting and fishing expedition in the mountains of Colorado.

W. H. Olin, '89, in reaching after better things, has closed his hand on the Principalship of the Osborne City schools.

Phoebe E. Haines, '83, Professor of Industrial Art in New Mexico Agricultural College, at Las Cruces, spends the vacation at her home in Manhattan.

Born, to Mr. and Mrs. I. D. Gardiner, of Alma, July 15th, a son. These young people are both graduates of the College, and have many friends among our readers.—*Republic*.

E. Ada Little, '86, has been offered the place of Superintendent of Sewing in the High School of Menomonie, Wisconsin, but has declined, preferring to teach another year in her Alma Mater.

A. B. Kimball, '89, has been nominated as alternate to the West Point cadetship, vice E. R. Ketner, of Junction City, who by some clerical error in the competitive examination was supposed to stand second.—*Republic*.

Born, July 27th, to Mr. and Mrs. J. W. Berry, of Jewell City, a son. Mrs. Berry will be remembered by old friends as the Miss Hattie Peck of years ago. Both of them are graduates of the College ['83 and '84].—*Republic*.

Abbie L. Marlatt, '88, after a vacation at home, a goodly portion of which was spent in special study under Dr. Ross, returned this week to resume her work as Professor of Household Economy in Utah Agricultural College at Logan.

J. G. Harbord, '86, passed examination at Fortress Monroe, Va., recently and received his commission as Second Lieutenant. He has been assigned to the Fifth Cavalry, but expects to visit Manhattan friends before reporting for duty.

Prof. S. W. Williston ['72], who has just returned from his first trip since taking to the field as Director of the University geological survey, expressed himself as very much pleased with his work. The Professor has been very successful in hunting for fossils, having found twenty-four spec-

imens of mososuarians in good condition, also several pterodactyls, one of which is, perhaps, unexcelled in the world for its perfection of preservation. The pterodactyl is one of the most interesting fossils of the reptilian age. It was half bird, half reptile, having wings and teeth. It measured from ten to fifteen feet in extent.—*Lawrence Journal*.

H. M. Cottrell, '84, our Assistant in Agriculture, has been invited by the Director of the United States Experiment Station to take the civil service examination with a view to employment as one of the editors of the Station publications.

A. A. Mills, '89, and Pamela Hoyt, Second-year in 1890-91, were married August 10, at the home of the bride's parents in Hoytsville, Utah. The happy couple will live at Logan, where Mr. Mills is Assistant to the Director of the Experiment Station.

THE REVISED COURSE OF STUDY.

With the opening of the next college year, September 10th, the course of study will be slightly strengthened by the addition of one more term in algebra, and broadened by an elective study in the last term of the fourth year. There are also slight changes in the arrangement of studies, and a possible modification of lines of instruction in accord with these changes. The course will then stand as follows:—

FIRST YEAR.

<i>Fall Term:</i>	Algebra. English Analysis. Geometrical Drawing. Industrial.
<i>Winter Term:</i>	Algebra. English Composition. Book-keeping. Free-hand Drawing three times a week. Industrial.
<i>Spring Term:</i>	Algebra. English Structure. Botany. Industrial (Carpentry or Sewing).

SECOND YEAR.

<i>Fall Term:</i>	Geometry. Elementary Chemistry. Horticulture. Industrial.
<i>Winter Term:</i>	Geometry completed, Projection Drawing. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking).
<i>Spring Term:</i>	Anatomy and Physiology. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy).

THIRD YEAR.

<i>Fall Term:</i>	Trigonometry and Surveying. Agricultural Chemistry. General History. Industrial (Farm and Garden).
<i>Winter Term:</i>	Mechanics. Constitutional History and Civil Government. Rhetoric. Industrial.
<i>Spring Term:</i>	Civil Engineering or Hygiene. Physics. English Literature. Perspective. Drawing two hours a week; Drafting two hours. Industrial.

FOURTH YEAR.

<i>Fall Term:</i>	Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
<i>Winter Term:</i>	Logic, Deductive and Inductive. Zoology. Structural Botany. Veterinary Science or Floriculture. Industrial.
<i>Spring Term:</i>	Geology. Political Economy. An elective in Agriculture, Horticulture, Mechanics, or related sciences. Industrial.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for the work performed during the industrial hours.

In Telegraphy, young men pay \$3 a term for office expenses.

Young women are furnished both Printing and Telegraphy free of expense, these two offices, with the Sewing and Cooking Departments, being provided especially for their industrial training.

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$3.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.30 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Kansas City is building two new school-houses. In Riley County uniformity of text books has carried by a good majority.

Salina Normal University has organized a department of elocution and oratory.

Supt. B. T. Davis, of Atchison, has been elected Superintendent of the Schools of Winona, Minnesota.

Supt. G. W. Martin, of the Burlington schools, has been elected Professor of Greek in Baker University.

Prof. F. W. Cragin, of Washburne College, has been elected Professor of Natural Science in Colorado University.

Principal J. E. Ross, of Ottawa, has been called to take charge of the Indian schools at the Sac and Fox Agency, Indian Territory.

Mrs. Ella Brown of Holton is the first woman to graduate from the Kansas State Law School. She will practice law with her husband at Holton.

A wonderful memory is possessed by Wallace Chapman, a four-year-old boy in Kansas City. A poem of nineteen stanzas was read to him three times, and he could repeat it word for word.

For the first time in the history of the State, the number of teachers seems to be considerably greater than the number of schools. In consequence there is much complaint about the low salaries obtainable.

The new college building at Winfield is reported to be in a dangerous condition, and fears are expressed that the steeple and some other portions of it will have to be removed before the class rooms can be occupied.

Harry Frost's "Collection of Kansas Poetry," which is to be issued as a premium to yearly subscribers to the *Topeka Lance*, contains 150 odd pages. The poems were compiled by Miss Hattie Horner, the Butler County poet.

Prof. Fitzpatrick, Assistant Superintendent of the Kansas City schools, has been elected Superintendent of the Schools of Omaha, Neb., with a salary of \$4,000. The Professor is a Kansas man, having formerly been Superintendent of the Leavenworth schools and President of the State Teachers' Association.

The new building of Ottawa University is nearly finished and will be ready for use by the opening of the fall term. It is an architectural beauty of white limestone and plate glass in the style of the Modern Romanesque. Though only a wing of the complete University building it contains twenty class rooms with large corridors and broad stairs.

A proposition by the city of Blue Rapids, Marshall County, to build a large and convenient school-house and present it to the County if the County would establish a high school at that place, was voted down last week by an overwhelming majority. The northern half of the county voted solidly against the establishment of the school because Blue Rapids had voted against Marysville for the county seat.

The removal of Kansas educators should not be allowed to continue. Within the past year or two the State University has lost Professors Marsh and Canfield; and Professor Shelton, of the State Agricultural College, has found more profitable employment in Australia. Professor Popenoe, also of the latter institution, has within the same time had three offers from as many States all at an advance in salary. No State can better afford to compensate such talent, and it ought to be worth to our institutions all it is to those of other States.—*Alma News*.

The office of State Superintendent of Instruction is busily engaged in preparing for distribution the warrants for the semi-annual dividends, amounting to 47 cents per capita for every child in the State between the ages of five and twenty-one years of age, who attended school for three months last year. The present school population of the State is 509,614. The dividend amounts to \$2,395,518.59. The counties having the larger school populations, and therefore receiving the larger slices of this dividend, are Wyandotte, having 16,908 school children, receives \$7,947.76; Shawnee has 16,549 pupils, and will get \$7,778.03; Sedgwick, with 13,926 school children, gets \$6,545.22; and Leavenworth has 11,875 school children, receiving \$5,581.25.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

MANHATTAN ADVERTISEMENTS.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75."

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, AUGUST 29. 1891.

NUMBER 2.

THE INDUSTRIALIST.

PUBLISHED WEEKLY.

By the PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Kellerman, Chairmen of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

WASTE ON THE FARM.

SYNOPSIS OF PRESIDENT FAIRCHILD'S REMARKS BEFORE DOUGLASS COUNTY INSTITUTE.

HE began by saying that though not a farmer himself, he had always lived with farmers, and as a "looker-on" had noticed how seldom the maxim—"A penny saved is worth two gained, and a penny well spent is best"—is thoroughly applied. This is an age of saving in most of the industries. Every great enterprise in manufacture—sawmill, factory, railroad, steamship—is making its profits from saving the little wastes. The great sawmills save even the slabs and sawdust. But farmers, giving the most striking examples of necessary economy, are still the greatest wasters in the line of production. The spigots of waste are found in careless seeding, by which only a portion of the field is occupied, though all must be plowed, cultivated, and harvested at a cost as great as if the full stand were secured; in the slack culture by which weeds are left to suck fertility and moisture from the struggling corn stalk, and to fill the land with millions of seeds to be fought in future years; in thriftless breeding, by which a sorry sire of scrubby stock is used for cheapness, although every farmer knows that like produces like, and generations of blocky beef cattle insure a continuance of such stock, doubling the value of his increase; in shiftless feeding, in neglected feed lot with poorest facilities for handling stock or feed; in thoughtless marketing, with careless loss of multitudes of little products that might sell for a goodly sum in the year if means were provided for sending from a whole neighborhood; in decay attacking stored crops, machines, and buildings, discovered too late for saving; in broken tools and dull tools and lost tools, forgotten till needed, and hindering a day's work till repairs or recovery or purchase can make ready. All these spigots of waste, too familiar to be dwelt upon, were illustrated by a story of a farmer who drew his load of hay twelve miles to market upon a wagon whose neglected tires came off and left the felioes to crush, and showed by his handling of the load that "gumption" was wanting, when for a day and night himself and son were kept at work in marketing a \$3 load of hay, with three broken wheels to repair and the borrowed wheels to return to add to the wrong side of his bargain.

But still greater waste is evident in lack of contrivance to save the multitude of steps that make up chores by having convenient arrangement of house, well, and barn, sheds, lanes, and fields; to save friction in machines and tools, harness, wagons, gates, doors, and windows; to save health in protection from wet, cold, and wind, hunger, thirst, and exposure; to save temper by easing the burdens of the day through foresight; to save the scraps of knowledge that count so much in the practical wisdom of daily life; to save the odds and ends of temptation that make for good or ill the character of the home.

A still greater waste is found in lack of consistent planning. When the plans of a business man are as indefinite as those of the average farmer, he fails before he is recognized as a business man. The factory that lacks consistent plans lies idle. So in a measure does the farm, unless there is constant, careful planning—planning for the daily routine which will accomplish most in the least time; for the season's work, so that every day, be it wet, cold, windy, or fair, may have its appropriate tasks; for such a rotation of crops as to gain a full use of the soil, sunshine, showers, and manures that make our mine of wealth; for adjustment of stock to crops, so that every straw, as well as every bushel of grain, be turned into the

most profitable form of produce for market; for safe storage of produce till ready for market; for development of skill in a business where every year's experience ought to count for surer results. Instead of being most subject to change of all producers, the farmer should be the most careful of planners for a life devoted to his own line of business. Instead of flying from wheat to flax, and from flax to corn; from pigs to sheep, and from beef to dairy cattle, he should save the waste of capital and skill in careful study of his own situation and careful experiment in changes to suit his condition. The waste from our farms in shifting crops and stock at a mere popular whim cannot be estimated. A famous New York farmer gave as the maxim of his success in sheep, "Buy when your neighbors sell, and sell when they buy."

Finally, the chief waste of life on a farm is in false purposes. The farm should be looked upon, not as a mere machine for speculation, not as a mere means of living, but as the home of generations, where children and children's children may find the truest development of life. The home acres should be deeper, rather than broader. "More land, more corn, more hogs," leads nowhere but to greater hoggishness. Better land, better crops, better stock, insure better men and women, better homes with each generation. Wealth is good for use, and every farm of true progress gives better use of wealth for the larger life of the farm home. Here, in the farm home, the best part of the world's workers in every calling must grow to manhood and womanhood, and here the true beginning of an eternity of progress must be found. The farmer who saves for his children a home of good influences, in true thoughtfulness, true usefulness, true affections and a wholesome life, saves all there is worth having in any life, and builds for himself an immortal monument. What any farmer and his wife can do for their children by looking after the waste to stop the leaks of life, only those who have tried it can tell.

THE VALUE OF A COLLEGE COURSE IN AGRICULTURE.

If we have discovered anything in this nineteenth century by studying the past, it is that ignorance, robbery, and law-breaking lead to poverty, suffering, and decay. With these facts before us, we may now ask the question: "Is such a liberal, scientific, and practical education as the agricultural colleges give of value to the American boy and girl of the farm?"

It would seem in this day, when we see on every hand the marvelous results achieved by the intelligent direction and application of the hitherto unused forces of nature to the practical affairs of life in other industries than agriculture, that there could be no question, not only as to the value but the absolute necessity of an acquaintance with the laws and forces which govern and mould the earth and life with all its manifold and varied expressions. If this land is not to be given over to desert solitude, if achievement in agriculture worthy of Americans and of lasting value to mankind are to be secured, then such a training is indispensable.

Is knowledge valuable? Is the art of how to best use things worth the trouble of training the hand and eye to obey the head? If so, then a liberal and practical education is not only valuable, but greatly to be desired.

A college course in agriculture gives admission to the best and most enjoyable society in the land. It helps to fortify young men and women against vice and crime. For notwithstanding the little episodes of college life, it is a well-known fact that the per cent of wrecks among college graduates is far less than that of the community in which they live.

A college course enlarges life and adds to enjoyment as nothing else can. An acquaintance with the things with which one has to do in every waking hour must certainly be a great and profitable addition to life. Knowledge lifts one nearer the Creator, and always tends to make its possessor embrace Him. A course in agriculture multiplies manifold the opportunities of securing a livelihood and a liberal surplus. It takes the false pride and conceit out of young men and women, and substitutes for it dignity and humility.

This is the effect of the new education in all technical branches of knowledge, and it is as unlike the old education as is the new way of governing children unlike the old. A course in agriculture tends to round out the student's character instead of directing it into exclusive and narrow lines. It leaves him no less the broad-shouldered, trusting youth in harmony with nature, while it ennobles and expands the intellect and lifts him into a purer atmosphere and nearer to the source of all knowledge.

A course in agriculture induces the effort to produce the greatest possible beneficial results by the least possible expenditure of energy; it tends to economize time and means and to keep a man clear of the poorhouse, while it breaks the idols of mammon. A knowledge of agriculture tends to the discovery that a man or a generation have only a usufruct right to the soil; that men are created to make things better and easier, especially for those who are to come after; that they are God's vice-regents in the great work of lifting the crude, imperfect, and gross into the refined, perfect, and concentrated.

The value of a college course in agriculture is beyond price. It takes the youth from the animal world and lifts him out of the lower plane, where to eat and sleep and drink and strut more grandly and expensively than the common herd are the absorbing aims of life, and places him in a new and fairer world; it teaches him that all law is from God, and therefore all laws are to be obeyed. It takes the youth from a life of grinding toil and places him among intelligent workers; it does not relieve from work; it gives victory and pleasure, because success is won by mental superiority instead of brute force; it makes him a co-worker with God in the great scheme of advancement.—Prof. J. P. Roberts, Cornell University, in the Voice.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

Two-thirds of the applicants for admission to West Point and Annapolis are rejected because of the cigarette habit and its results.—*Chicago Tribune*.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States History. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2d. Certificates of passing the grammar grade in any city school with a course of study approved by the Faculty, when properly signed by the City Superintendent.

3d. Kansas teachers' certificates issued by the County Board of Examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.			
Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Sumner,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		
CITIES.			
Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Salina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solemon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

THE REVISED COURSE OF STUDY.

With the opening of the next college year, September 10th, the course of study will be slightly strengthened by the addition of one more term in algebra, and broadened by an elective study in the last term of the fourth year. There are also slight changes in the arrangement of studies, and a possible modification of lines of instruction in accord with these changes. The course will then stand as follows:—

FIRST YEAR.	
Fall Term:	Algebra. English Analysis. Geometrical Drawing. Industrial.
Winter Term:	Algebra. English Composition. Book-keeping. Free-hand Drawing three times a week. Industrial.
Spring Term:	Algebra. English Structure. Botany. Industrial (Carpentry or Sewing).
SECOND YEAR.	
Fall Term:	Geometry. Elementary Chemistry. Horticulture. Industrial.
Winter Term:	Geometry completed, Projection Drawing. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking).
Spring Term:	Anatomy and Physiology. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy).
THIRD YEAR.	
Fall Term:	Trigonometry and Surveying. Agricultural Chemistry. General History. Industrial (Farm and Garden).
Winter Term:	Mechanics. Constitutional History and Civil Government. Rhetoric. Industrial.
Spring Term:	Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week; Drafting two hours. Industrial.

FOURTH YEAR.

Fall Term:	Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
Winter Term:	Logic, Deductive and Inductive. Zoology. Structural Botany. Veterinary Science or Floriculture. Industrial.
Spring Term:	Geology. Political Economy. An elective in Agriculture, Horticulture, Mechanics, or related sciences. Industrial.

The daily routine requires chapel at 8:30 A. M., and classes from 8:30 A. M. to 1 P. M., as shown under "Class Hours." Class rhetoric exercises are held weekly. Military drill is twice a week. On every Friday afternoon, at 1:30, all attend the public lecture or rhetorical exercises in chapel.

Special Courses.—Persons of suitable age or advancement who desire to pursue such branches of study as are most directly related to agriculture or other industries may select such studies under the advice of the Faculty. Assaying and Pharmaceutical Chemistry may be provided for by special arrangement when students are qualified to pursue them.

Vocal Music.—All students are furnished instruction in vocal music free of charge, under direction of the Faculty. Classes meet on Mondays and Wednesdays for advanced pupils, and for beginners on Tuesdays and Thursdays at 1:30 P. M. The advanced class shares in the music of public exercises during the Commencement week. This study is taken up at the choice of the student, but regular attendance is required as at other classes until excuse is granted.

Arrangements for special voice culture may be made with the Professor in charge, on reasonable terms.

Military Training.—During the second year, a course of thirty-two lectures is given. These are designed to show how an army is organized, equipped, and supplied, to explain some of the minor operations of war, to show the organization of the militia, and the militia law of this State. Instruction is afforded, to such as desire it, in other military subjects.

To those who desire it, an opportunity is given for practice in the ordinary infantry drill, including the school of the soldier, company and battalion, and target practice. Although drill is thus made optional, students are not allowed to take it for periods shorter than one term. To obtain a proper proficiency, however, one should take the semi-weekly drill for at least a year.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$350 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

CALENDAR.

1891-92.
 Fall Term—September 10th to December 18th.
 Winter Term—January 5th to March 25th.
 Spring Term—March 28th to June 5th.
 June 5th, Commencement.
 1892-93.
 Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

The largest tomato on record in the Station weighs thirty ounces.

The Farm Department offers to sell a handsome Shropshire ram lamb at a reasonable figure.

Dr. Mayo has rented Prof. Kellerman's residence property, and moved into it yesterday.

Prof. Walters has just drawn plans for a fine residence for Mr. J. E. Beckman, of Randolph.

Regent and Mrs. Hessin have spent the past week in Colorado for the refreshment of mountain air.

Assistant Marlatt accompanied his sister to Logan, Utah, and will spend two weeks there collecting.

Considerable new machinery has been received for the new iron shop, while the remainder is daily expected.

Mrs. Kedzie and Miss Tunnell are expected today, after a delightful sojourn of two months in California.

Mrs. Winchip and Miss Little returned from Colorado on Tuesday fresh for duty in the Sewing Department.

Prof. Popenoe returned Thursday from attendance upon the several scientific feasts at Washington this month.

Mr. Hurvey, a teacher of Shawnee County, spent several hours in a tour of College buildings on Thursday morning.

Prof. Georgeson is expecting soon a corn harvester for the rapid gathering of ensilage corn. It loads the corn as cut.

Mr. Taylor, of Edwardsville, "the potato king," visited the College on Tuesday to get some pointers in cattle feeding and silos.

Prof. Lantz returned on Thursday from a sojourn of two weeks in the mountains, feeling much the better for his outing, short as it was.

Three apples, averaging over twenty ounces in weight, have been received from Marysville. Their accepted name, "twenty-ounce pippin," well describes them.

A 'bus-load of delegates to the State Assembly of Knights of Labor visited the College, and were interested inquirers into the work undertaken for all classes of students.

Messrs. S. M. Mullory, of Junction City, W. J. McLaughlin, of Centralia, and J. F. Swingle of Leonardville, have taken the State examination at the College this week.

Dr. C. F. Ulrich, of Wheeling, W. Virginia, spent several hours at the College last week with special interest in the facilities for industrial training in shops, sewing rooms, etc.

Mr. James Rain, recently chosen Instructor to assist in the Department of English, comes highly recommended from Oberlin College, Ohio, where he has been doing similar work the past year.

Inquiries for rooms and boarding places are numerous. Those desiring boarders or roomers will find it to their advantage to notify the President at once, giving location, number and sex desired, and terms.

Mr. Potter, of Philadelphia, and Mr. Silber, of New York, were interested visitors at the various Departments of the College on Wednesday and Thursday. They expressed surprise at the extent and completeness of equipment.

An addition has been made to the Jersey herd by the purchase of Madam Bloomfield from the La Veta Jersey Cattle Company at Topeka. Madam Bloomfield is a typical Jersey. She made eighteen pounds of butter in seven days last

year, and for a couple of years past she has been a member of the show herd of the above-named company.

The oat crop did not live up to the promises it made during the early part of the summer. It lodged badly and the consequence is that the yield was but medium and the grain light. Much trouble was also experienced in saving it from the rain after harvest.

Prof. Walters deserves credit for the neat design of document cabinet in the Secretary's office. The College carpenters did the work. The shop is also responsible for the handsome railing which separates the reading room from the hall in the north corridor.

Ten members of the Third-year Class have organized a reading club which meets every Tuesday evening at the home of a member. Meetings have been held regularly during July and August. It is proposed to continue the organization throughout the college year.

Major Hudson, proprietor of the Topeka Capital, made the College a visit on Tuesday afternoon. He expressed delight with the growth of the College, of which he was a Regent from 1873 to 1875. He pronounces the grounds and the view from them the finest in the State.

The Farm Department has a very fine young Holstein-Friesian bull which is offered for sale. His dam, Empress Josephine 4th, is a prize cow, and his sire, Consul Gerben, sold last year for \$500. The bull is now a little over a year old. He tipped the scales at 1000 pounds on his birthday.

A recent improvement at the barn is a fire-escape for the benefit of the cattle. By a system of levers running across the head of the stalls, all the animals in a given row can be released by a single motion. The device will be convenient for regular use in handling the cattle. It is the invention of Prof. Georgeson.

Prof. and Mrs. Hood gave all their friends a grateful surprise by reaching home on Thursday afternoon, two days in advance of the appointed day. They have been greatly refreshed and profited by their summer's tour among friends in the East. They visited in Illinois, Indiana, Ohio, Virginia, and Massachusetts, with a sea voyage from Norfolk to Boston.

Bulletin No. 20. Experiments with Wheat, is out, and gives a detailed account of the experiments carried on with that cereal during the past year. The entire crop was under experiment in some form. The yield was exceptionally good. The Zimmerman variety, which formed the main crop, yielded 34.65 bushels per acre in the test plots for varieties. There is considerable demand for this variety for seed. Last year the entire crop was sold for seed, and upwards of seventy bushels have been shipped already this year to various parts of the State.

Horace Eells, formerly of Manhattan, now of Santa Anna, California, sends us a paper containing this notice: "Mrs. Nellie S. Kedzie, Professor of Household Economy and Hygiene in the State Agricultural College, Manhattan, Kansas, is visiting her friend and college classmate, Miss Carrie M. Kimball, at the residence of Horace Eells, Garden Grove. She is very much pleased with Southern California. The fruit, the tropical growth of every kind, the delightful climate, and the charming scenery all appeal strongly to her, and she counts this certainly a veritable paradise, or, at least, a very close gateway to the country of perfection."—*Nationalist*.

The Chemical Department has recently sent out a circular of inquiry to over three hundred farmers to whom it furnished sugar beet seed last spring, to ascertain the condition of the crop at present. Only about one-third of the farmers have replied as yet. These show a considerable diversity of results, ranging between total failure and complete success. In the eastern part of the State the spring was so wet that in many cases the seed was not planted, and in others the crop was washed out. Throughout the State the spring was reported as too wet, and the last few weeks as too dry. The beets have in most cases been free from the attacks of disease or insects. Potato beetles are reported as injurious in a few cases, and web-worms in several instances. The indications are that a crop will be raised by a sufficient number of the farmers, so that the co-operative experiment will be a fair success.

GRADUATES AND STUDENTS.

S. O. Hoffman plans to spend a year at the State Normal School.

I. B. Parker, Fourth-year, is looking up rooms for several new students.

Nettie J. Wycoff, student in 1889-90, was married August 14th, to E. E. Roach.

J. A. Davis, Second-year in 1889-90, is telegraph operator and clerk in the Santa Fe office at Lyons.

F. J. Van Bentham hopes to enter upon a course in Civil Engineering at Lehigh University, Pennsylvania.

M. T. Evans, Third-year in 1883-84, is to study in the Eclectic Medical Institute at Cincinnati, the coming year.

E. Ada Little, '86, will resume her work as Assistant in the Sewing Department with increased wages for the coming year.

Mrs. Emma Knipe-Curtis, Second-year in 1888-9, wife of E. W. Curtis, Third-year in 1890-91, died at the residence of her parents on College Hill on July 13th.

Susan W. Nichols, '89, is a visitor this week among her many friends at Manhattan. She is successful in her music teaching at her home in St. Joseph, Mo.

Louise Daly, Second-year in 1890-91, writes from Smith Center that the death of her father recently makes it impossible for her to return to College the coming year.

W. J. McLaughlin, '87, has spent the week at the College completing the examination for State Certificate. He will have charge of the schools at Berne the coming year.

E. M. Blachley, Second-year in 1889-90, is in the employ of the United States Geological Survey. His field of operations will be in Western Kansas and Eastern Colorado.

John Davis, '90, called at the College on Wednesday, having just returned from a summer's visit to his old home in Indiana. He will spend the year in a professional course at the State Normal School.

G. W. Wildin and R. L. Wallis, Fourth-years, who have spent the summer here,—the former in the Mechanical Department, the latter on a farm,—left yesterday for two weeks' visiting at their homes.

James E. Thackrey, Third-year in 1888-9, and brother W. E., Second-year in 1887-8, are visiting at home near Manhattan after a year of teaching in the Government Schools at Shawneetown and Sac and Fox Agency, Indian Territory.

J. G. Harbord, J. U. Higinbotham, and W. E. Whaley, all of '86, found much that was new in a visit to their alma mater yesterday. Lieut. Harbord is en route to Fort Reno to join his company, the Fifth Cavalry. Mr. Higinbotham returns to Chicago, the report that he intended to practice law in Manhattan being without foundation. Mr. Whaley leaves in two weeks for the East, where he will read law.

The whereabouts and present or prospective occupation of most of the members of the class of '91 follow: W. A. Anderson is stenographer in the Rock Island Railway offices at Topeka. W. S. Arbuthnot has been employed during the summer in the Veterinary Department, and leaves next week for a year's study at the Chicago Veterinary College. J. N. Bridgman has found congenial employment in the Mechanical Department and on Prof. White's new house. R. J. Brock will spend the year in the law office of Regent Hessin, preparatory to a course at Ann Arbor. C. A. Campbell will teach near Golden, Colorado. S. N. Chaffee is the Alliance nominee for Clerk of Riley County. E. C. Coburn is employed in the offices of the Armour Packing Company, of Kansas City. Gertrude Coburn has accepted a place as teacher of domestic economy in the high school of Menomonie, Wisconsin. Tina L. Coburn proposes to teach in Kansas City, Kansas. Callie Conwell plans a post-graduate course. Christine Corlett printed a pamphlet for Prof. Walters in July, and has spent nearly all her spare hours in the Printing Office; she will take post-graduate studies. Mary E. Cottrell will teach the home school in Wabaunsee. K. C. Davis spent a month or more in local writing for the *Manhattan Republic*, and has applied for a posi-

tion as teacher in the Government Indian School at Shawneetown, Indian Territory. Mayme Houghton will teach in the Cleburne schools. W. W. Hutto will be found for nine months at St. George, where he engages in teaching. G. V. Johnson is in the printing and newspaper business at Springer, New Mexico. D. C. McDowell will "farm it" at home for a year, and study in special lines as opportunity offers. Madeleine Milner is at home. P. C. Milner thinks of pursuing post-graduate studies in agriculture and stock-breeding. J. O. Morse has gone home after two months' work in the Mechanical Department. A. J. and H. V. Rudy are on a fruit farm near Fresno, California. Lottie Short has spent the vacation in clerical work in various College offices, and will take up post-graduate work in chemistry and domestic economy with the opening of the term. Caroline Stingley is awarded the Allingham school near Manhattan. E. C. Thayer has gone to Chicago to pursue further studies. S. L. Van Blarcom passed examination as railway postal clerk, and will soon be assigned to a route. F. A. Waugh will give the Horticultural Department of the Experiment station the benefit of his time and talents until something better "turns up." Fannie E. Waugh will teach the home school near McPherson. Bertha E. Winchip will keep house for her mother. A. O. Wright has engaged a school near Burr Oak. H. E. Moore is fitting himself for a business life by a course at Bryant & Stratton's Business College at Chicago. F. C. Burtis is working in the Agricultural Department, and may take post-graduate studies. Lillian St. John is engaged to teach the home school near Zeandale. Of those not mentioned, the plans are unknown.

One of the most enjoyable social events of the season was given last Thursday night by Miss Edith McDowell at her home near Bluemont. The party consisted of members of the Third-year reading club with the exception of a few. The evening soon passed in conversation, music, and refreshments, after which "Home Sweet Home" was charmingly rendered by members of the club.

WHEREAS, Death has removed from our midst our esteemed and valued classmate, Emma A. Allen, and

WHEREAS, In her death our class loses a worthy member, its brightest scholar, and an untiring worker; therefore, be it

RESOLVED, That we, as a class, express to her bereaved friends our sincere sorrow, and mourn with them in the loss of one so dear; and that a copy of these resolutions be sent to the secretary and historian of the class, and that the city papers be asked to publish them.

CLASS OF 1889, K. S. A. C.

BOARD MEETING

All the Regents except Mr. Hessin, who was delayed a day in returning from Washington, were in attendance upon the Board meeting on Thursday and Friday of last week.

Regents Wheeler, Forsyth, and Finley, Committee on Farm Management, spent a day in advance in looking over the farm stock, crops, and buildings, with abundant satisfaction in the generally thrifty condition.

Besides the routine business of auditing vouchers for the quarter ending June 30th, and inspecting investments of the Loan Commissioner, some time was spent in considering the needs of the various Departments. Expenditures were authorized for improvements in the Secretary's office; for a sulky plow on the Farm; for a library table; for an adjustable table in the Drawing Department; for floor cases in the Museum; and for supplies and apparatus in the Experiment Station.

The resignation of Prof. Kellerman, to take effect September 1st, was received and accepted, the President and Secretary being appointed a Committee to draft resolutions of regret that he accepts the call to other work.

The Committee on Employes reported that having held a meeting on July 29th to consider the prospective resignation of Prof. Kellerman, it was decided best to send to the meeting of the Association of Agricultural Colleges and Experiment Stations at Washington, August 13th, two delegates, Regent Hessin and Prof. Popenoe, and they were made the accredited delegates by approval of the Board.

The Committee on Grounds and Buildings reported the progress made in construction of the addition to Mechanics' Hall and the new roofs as authorized, and that contract for sewers and water

closets had been made with Mr. Geo. E. Hopper, whose work is nearing completion.

Upon recommendation of the Committee on Employes, a transfer of the geology from the Department of Physiology and Veterinary Science to that of Chemistry was made. Mr. J. T. Willard was appointed Assistant Professor in Chemistry, with a salary of \$1400, and the salary of Assistant Breese was made \$900. Mr. James Rain was chosen Instructor to assist in the Department of English at a salary of \$1000.

The Secretary and Treasurer of the Board were authorized to formulate the report required by law to the Secretaries of the Interior and of Agriculture.

Authority was given to Pres. Fairchild, in absence of a choice of a successor to Prof. Kellerman, to make temporary provision for the work in the Botanical Department.

The Board adjourned to meet on Tuesday, October 20th, at three o'clock P. M.

A GIRL WHO CAN COOK.

Miss Gertie Coburn, the eighteen-year-old daughter of Mr. F. D. Coburn, of Kansas City, Kansas, an old-time newspaper man in Kansas and Missouri, has been offered the department of domestic economy in the high school of Menomone, Wisconsin. Miss Coburn is a Kansas girl. She was born and bred in the Sunflower State, and in good looks and sunny nature is one of the best types of the Kansas woman. Her education was obtained in the State Agricultural College at Manhattan, graduating with the honors of her class last June. She is a hard student and an earnest worker, thoroughly informed on all the live topics of the day, and goes to her new work fully equipped for the duties of the responsible position. Besides the department of domestic economy, Miss Coburn will have two classes in the high school.—*Kansas City Star*.

THE STATE NORMAL SCHOOL.

The County Superintendent of Schools has just received the following:—

DEAR FRIEND:—Letters received at this office show that the impression has gained some currency that the State Normal School will not open this fall. Kindly inform the friends that we have not for a moment entertained such a thought; that the school will open August 31, 1891, as announced in the catalogue, and that there will be no interruption whatever in the work on account of the temporary difficulty in regard to the interest fund. We are planning larger than ever and have every assurance at an increased attendance over last year. Sincerely yours,

A. R. TAYLOR, President.

Emporia, Kansas, August 21, 1891.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged. In a few special departments of instruction, the following payments are made in advance to the Secretary:

In the term of Analytical Chemistry, students pay \$3 for the chemicals and apparatus used in their laboratory practice and analysis.

In the Printing Office, young men, in their first year, pay \$3 a term for office expenses. Advanced students have the use of the office for

Lessons in instrumental music—two a week—are from \$10 to \$12 a term, according to its length; one a week, \$6 to \$8.40. One-half is to be paid to the instructor in charge with the first lesson, the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for the third year, \$7 a term; and for the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for Botany and Entomology, \$1.50; case, pins, etc., for Entomology, \$2.25; rules, in carpentry 25 cents, printing 25 cents. The total expense for these articles during the four years is less than ten dollars.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from 50c. to \$1 a dozen pieces.

Ordinary expenditures, aside from clothing and traveling expenses, range from \$100 to \$200 a year.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, Printing, or Telegraphy. Young women may take Sewing, Printing, Telegraphy, Floriculture, or Music.

All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen, laboratory and hall.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The *Western School Journal* complains that so many prominent educators have left the State this summer: "J. H. Canfield to the Nebraska University; F. A. Fitzpatrick to Omaha; J. H. Hays, of Winfield, to the Colorado Normal School; F. H. Rossiter, of Hiawatha, to Winona, Minnesota—all these lost to Kansas since last year."

One of the features of the Russell County Normal was the exhibition of school work by the schools of Russell. It occupied one of the rooms of the school building, and was, with regard to arrangement, as well as to variety of subjects, one of the finest displays of such work we ever saw. Supt. J. R. Bickerdyke is a worker who does nothing by halves.

The Executive Committee of the Riley County Teachers' Association for the coming year are C. G. Swingle, of Randolph, President; Wm. McIlvaine, of Ogden, Vice-president; Miss Emma Secrest, of Manhattan, Treasurer. The Committee intend to hold a series of large County gatherings during the winter, instead of the district "fizzles" experimented with during the last year.

Superintendent Greenwood, of Kansas City, is in Helena, Montana, with the President and Secretary of the National Teachers' Association, looking the city over, and hearing its claims for the next annual convention of the Association. From Helena they will go to Seattle, which has also put in a strong bid for the convention of '92. Helena sent a delegation of its leading citizens, among whom was the Governor of the Territory, to Toronto last month, and the invitation was engraved on a massive silver salver studded with precious stones. The only Eastern city that is at all considered in the selection of the next meeting place is Saratoga, New York.

The pension question agitates the breast of the eastern pedagogues just now. Keep it up, brethren. The teachers of Kansas will not get a pension law before New York and Massachusetts. The *Board of Education* reminds us that in Germany, after ten years' service, each teacher is entitled to a pension equal to one quarter of his salary at that time, should he be obliged to stop teaching. To this one-eighth is added for each year's service thereafter. Thus, if he should teach thirty years and then stop, twenty-eighths are added to the one-fourth—that is, he will get one-half the salary as a pension. Should his salary be \$800, he can retire on an annual income of \$400.

MANHATTAN ADVERTISEMENTS.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

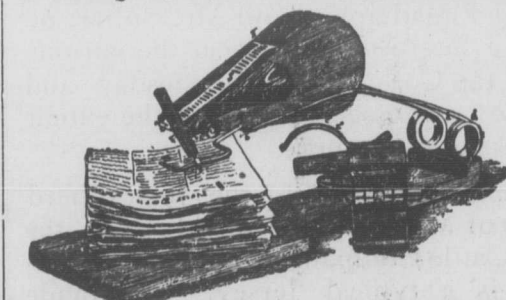
PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 5, 1891.

NUMBER 3.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY [REDACTED] DENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director

THE SANTA FE TRAIL.

BY J. B. THOBURN, '93.

IT was Dom Pedro, of Brazil, who, on arriving in this country, said, "There are no ruins in America; let me see Longfellow." In this, as in everything else, Kansas is typically American. Like the sunflower, it has been a plant of quick growth as compared with the older commonwealths, and it has not as yet arrived at an age when it can boast of antiquities. Seven years before the State was admitted to the Union there were no white men resident within its borders outside of the military reservations. The oldest relic of civilization in Kansas—a remnant of the loop-holed stone wall that once formed part of the original defenses of Fort Leavenworth—is only about sixty years old. But everything that is in any way connected with the past history of the State is venerated in Kansas as is well attested by the magnificent museum and library of the State Historical Society.

So it is that when a Kansan in traveling over the State comes to the remains of an old roadway angling across the prairie his interest is aroused, especially if he is informed that it was once the great Santa Fe Trail. Years have passed since the last solitary "prairie schboner" went over the much-worn track; a scanty growth of grass has covered the most of what was once a dusty highway, while the rains of many summers have washed deep gullies where the old paths went down the hill-side. But he who is interested in a Kansas antiquity does not remark upon the unsightly ditch, but looks at the old trail rather with a feeling of curiosity greater, perhaps, than that he would experience when beholding for the first time the classic ruins of Rome or Athens. The Santa Fe Trail was once the scene of great activity, and was of supreme importance in the early history of the Southwest. If the traveler follows the course of the abandoned trail several miles, he may come to an old ford. Some distance away the trail spreads out, and one can readily imagine the reason why if he pictures to himself the long caravan, with men and animals tired, dusty, and thirsty, after a march of thirty miles since leaving the last watering place. For five or six miles back the slope the men have been measuring with their eyes the distance to the tall cottonwoods at the ford, and how quickly they scatter out along the stream to quench their thirst. Then they go into camp for the night. What a motley assemblage! American frontiersmen, rough in appearance, but brave and generous; swarthy Mexicans from Santa Fe; French Creoles returning to the settlements on the Missouri; several half-civilized Delaware or Shawnee hunters or scouts from the border; and perhaps a few soldiers. Such was the personnel of the freighters' trains that camped at Council Grove, the Crossing of the Cottonwood, Walnut Creek, and Pawnee Rock. The first named was the "jumping off" place—the out-post of civilization,—and the returning freighter hailed its appearance with delight. Here first he might receive tidings from the distant home in "the States," and here too he might wash the dust of the Great American Desert from his throat with something stronger than creek water.

But the overland freight caravan was not all that used the road. It was over this route that Kearney's army tramped and camped on its way to the Mexican war. Fremont, "the Pathfinder," and his friend and adviser, Kit Carson, passed over this beaten track, as did also the historian, Parkman, on his return from the journey in which he collected the material for his first book. Over this trail in 1848 Aubrey, a Creole Frenchman, rode in the saddle alone from Santa Fe to West-

port, Missouri (now a part of Kansas City), a distance of over nine hundred miles, in six days, when for two-thirds of the distance the country was infested with hostile Indians. On this road, within the present borders of McPherson County, the Santa Fe merchant Chevaz and his men were killed for their gold; and doubtless many other tales of dark deeds might be told.

The days of the trail are gone; most of the freighters are dead; the road is plowed up and intersected by hundreds of fences, and cattle now pasture on the old camp ground; while the overland traffic and travel is now accomplished by means of the railway. The journey that once required three months of danger and difficulty is now made in forty-eight hours with safety and comfort. Civilization has extended over the whole course, and there is no longer any frontier in the sense once used. Henceforth the Santa Fe Trail will live only in history and legend.

LIBRARY WORK.

BY JENNIE C. TUNNELL, ASSISTANT LIBRARIAN.

THE questions so often asked, "What do you have to do, anyway? You have lots of time to read, don't you?" have furnished me with a text for a short sermon.

Let me preface what follows by saying that my experience in the line of library work has been gained wholly in our own library, but I think it will give an insight into the labor of directing and systematizing the work in a large library.

Not many outside of the few engaged directly in library work are aware that there exists in Albany, New York, a special school for training young people for the profession of librarians, originated and conducted by Melvie Dewey.

In this school, besides writing and type-writing, library economy,—the arrangement, classification, cataloguing, methods of library records, including all the minutia of work in a library,—the modern languages, including French, German, and Spanish, are taught. Everything for the ordering and greatest usefulness of a library is taught.

The need of a fair knowledge of the modern languages is seen at once when we consider that many of the finest scientific works on every subject science deals with are written in foreign tongues, and that in many of our large cities, foreign periodicals and books have a place in the public library.

The profession of the librarian is still in the process of evolution. Much is to be learned in regard to methods. The profession as yet has not taken equal place with the teacher's profession, but in time the librarian will be recognized as the most valuable adjunct the teacher can have. Even now he is a man whose acquaintance with and judgment of books is recognized by everyone, and he is consulted by the searcher after knowledge.

The librarian has not simply to deal with books: the classification and cataloguing of books is and would be a comparatively easy matter. He has to deal with people, and it is in the contact with people of varied tastes and varied needs and with people of entirely different classes that the work and influence of a conscientious man or woman can be made to tell. Librarians are expected to be walking encyclopedias. They must know not only the latest story, the best magazine article, and scientific works in general, but they must have an acquaintance with every science in all its branches, and with art and the history of every nation on the earth. They must be able to refer to articles in the magazines for the last three or four years, giving author, title, and summary of

contents. All this must of course be on the tongue's end of every librarian, and he must produce it to meet the wants of the large body of readers in the public libraries. By kindly advice and sympathy, the librarian can help and show what is best and wisest to read, and in that way his influence is to be exerted.

Much might be said of the routine work, but that is not the pleasant side, and we like to know only of the pleasant side of any work.

OUR AGRICULTURAL EXPERIMENT STATIONS.

The so-called Hatch act gave a new and great impetus to the work of experiment stations in this country. It could not have been otherwise, for it made provision for an appropriation of \$15,000 a year to each State or Territory that would accept the trust, to establish a station in connection with its agricultural college, or to aid such stations already established. All of the States, except Montana, Washington, and Idaho, have taken advantage of the act, as have also New Mexico, Arizona, and Utah. Some have more than one, and some that have only one regular experiment station have organized one or more branch stations located in different sections of the State. If these branch stations be excluded, there are now fifty-three experiment stations in the United States; while, if they be counted, there are sixty-nine.

A movement which in fifteen years increased the number of regularly organized experiment stations in our own country from one to fifty; whose influence has extended to Canada, South America, Australia, and Japan, causing the establishment of similar stations in those countries; which this year will spend approximately \$1,000,000 in the United States alone, exclusive of the work of the Department of Agriculture; which during the year will send bulletins direct to nearly 400,000 farmers; and whose workings have been kept, in the main, free from politics, must have had a worthy object, efficient workers, and given practical and useful results. That such is the case none familiar with the investigations of at least the older stations can deny.

The science of agriculture must always be the mother of its art, and to aid the art through the study of the science agricultural experiment stations were established. They were started to conduct experiments upon plants and animals and the needs of both; to improve the useful ones and eradicate the harmful; to study their nutrition in all its phases and determine the chemical composition of their foods; to learn how to cure their diseases, and promote their health; and besides increasing their productiveness and the quality of their products by proper food and care, to also introduce new and valuable ones from other localities. They were intended to study fertilizers and fertilization; the vitality and germination of seed; the variability of soils and waters; rainfall and general climatic conditions; and other questions influencing rural economy. But this was not all, for their chief aim was to distribute information, and to help educate the occupants of our farms and plantations, giving new aims, zest, and ambition to their too often humdrum life. In short, the United States experiment stations aim to help the American farmer in mind and pocket.

The greatest obstacle which the stations have met has been a demand by the farmers for immediate results and a prejudice against the laboratory and its work; but this gradually disappears as the farmers become more and more familiar with science. On this account the older stations are undoubtedly doing better work today than those of more recent origin, which are still struggling against this sentiment. Experience has taught, not only in Germany but here, that thoroughly scientific investigation invariably gives the most practical final result. As a rule, the older stations also have the most experienced and best-known agricultural scientists in their employ; but this is not always the case. With the large increase in the number of the experiment stations which took place in 1887-88, came a corresponding demand for the services of these experienced men, and several accepted more lucrative positions than they had previously held.

The demand for experienced men was, however, far in excess of the supply. From seventeen, the number of experiment stations suddenly increased to fifty, with nothing like a proportional increase in men who were capable at the outset of filling the places to which they were appointed.

At first, many places were undoubtedly filled by popular favorites, appointed to their positions through the influence of farmers' organizations or for wholly local reasons. Some of these have proved worthy of the trust, and by hard study and work are building up their departments and themselves.

If it be also remembered that these newly formed stations have been organized scarcely three years, and have not been in working order for that length of time; that they are going through the same trials as the older stations have had; that they have to break down the prejudices of many farmers, as the older stations have largely done; and that they were popularly expected to show in a few months results equal to those which even the German experiment stations have conquered only after years of strict application with the aid of the best scientists of that scientific nation—it cannot be wondered at that these new-born stations have in several instances fallen short of what was expected of them. While in some cases the three-year-old stations may not as yet be able to show results equivalent to the \$45,000 received by them in that time, still, as a whole, I think, no intelligent agriculturist familiar with their workings will deny that they have more than returned the appropriations received by them. In fact, I doubt if the increased value of commercial fertilizers, to improve which the stations were first established in this country, has not in itself more than balanced the account.

While there is scarcely a science that has not been called into play in some one of the experiment stations, still, chemistry has its place in all, and is pre-eminent in most. Horticulture, botany, and entomology are of course extremely prominent, while the study of fungi and bacteria is steadily increasing. But to review the present work of the various stations nothing better than the following summary, from an official report of recent date, can be given: "Twenty-seven stations are studying problems relating to meteorology and climatic conditions. Thirty-one are studying the soil, by investigations of its geology, physics, or chemistry; experiments in tillage, drainage, or irrigation; soil tests with fertilizers, or other experimental inquiries. Thirty-five are making analyses of commercial or home-made fertilizers, or are conducting field experiments with fertilizers. Thirty-nine are studying the more important crops with reference to the methods of culture, manuring, and rotations; varieties adapted to different localities and purposes; and chemical composition and nutritive value. Twenty-five stations are investigating the composition of feeding-stuffs, and in some instances making digestion experiments. Seventeen are dealing with questions relating to silos and silage. Twenty-four are conducting feeding experiments for milk, beef, mutton, or pork, or are studying different methods of feeding. Eighteen are investigating subjects related to dairying, including the chemistry of milk, bacteria of milk, creaming, butter-making, and the construction and management of creameries. At least thirty-three stations are studying methods of chemical analysis. Botanical studies occupy more or less of the attention of thirty-three stations; these include investigations in systematic and physiological botany, mycology with special reference to the diseases of plants, the testing of seeds with reference to their vitality and purity, and classification of weeds, and methods for their eradication. Thirty-five work to a greater or less extent in horticulture, testing varieties of vegetables and fruits, and making studies in varietal improvement and synonymy. Nine have begun operations in forestry. Twenty-five investigate injurious insects, with a view to their prevention or destruction. Fifteen give attention to veterinary science. At least four are experimenting in apiculture and three in aviculture. Sugar-making is experimented with at six stations, but the Louisiana Sugar Experiment Station does far more in this direction than any other." Thus it will be seen that the work is quite varied and comprehensive.

The bulletins of the stations have done and are doing a good work. New facts, new theories, and new interests are daily added to the farmers' lives. A great school is open to them, of whatever age or sex, and they are learning. They are studying science upon their farms; observing insects, inquiring into the reason of blights and rusts, noticing the effect of different constituents of plant-food upon their crops; helping on their neighbors in the work; and are forming societies,

and holding institutes, where they are discussing the scientific and economic problems of their lives with ever-increasing ardor and intelligence. Accustomed from their boyhood to drudgery, from their manhood to labor through all the hours of daylight, they have made a living and, with few exceptions, nothing more. A brighter future, however, lies before them. Our unoccupied arable lands will soon be exhausted, and population is ever on the increase. The farmers will co-operate more with our experiment stations, will find more and more beauty in their surroundings and with increased facilities and increased knowledge will take the place which belongs to them in our government and in our nation.—*Extracts from an Article by Prof. C. L. Parsons in Popular Science Monthly.*

BRIEF HINTS.

There is more in planning than in hard work.

The farm is quite as near heaven as the city is.

The enriched acre helps you to enrich other acres.

Intensive farming permits of no waste land or labor.

Keep the best soil near the surface, or make it all best.

When you stint your animals you starve your pocket.

The cost of production varies with the farm and the farmer.

If you have a poor spot on your farm, make it the richest.

A little farm well tilled is better than a big farm poorly tilled.

The better animals are kept, the less liable they are to disease.

Cow exercise and horse exercise are two quite different things.

The thrifty farmer needs to trust nobody but God and Nature.

Promise no more than you are reasonably sure you can perform.

Sticktoitiveness is a good quality, if you stick to the right thing.

A universal cash business would dispense with brokers and usurers.

Breeding is an art, but it doesn't follow that every breeder is an artist.

Carry on those lines of farming to which your farm is best adapted.

The rains help the weeds as well as the crops. Nature has no favorites.

Run just so much of your farm as you can do justice to, and stop there.

Constantly shifting from one line of farming to another is poor business.

The foundation of our education is laid before we understand the use of it.

"Test your cows," doesn't mean to see how little you can keep them on.

Uniformity is often urged, but the bad as well as the good may be uniform.

When you buy a patent article, be sure that you do not buy a lawsuit with it.

A scrub farmer on a scrub farm with scrub stock has hard scrubbing to live.

If you have anything too filthy to eat, put it into the hog and then eat the hog.

Intense farming means giving to every acre of the farm maximum fertility and value.

"Everything fed has been raised on the farm," generally means successful farming.

The man who owns a good farm has a fountain of support from which he can always draw.

The kind and condition of soil has a wonderful influence on the quality and flavor of plant foods.

In grading up your herd, be sure to grade up the bull by getting a better one every time you change.

Your own business is about all you need to attend to; others can generally take care of their own.

What other three or five acres turns out as much real value and gratification as the acre in the garden.

A horse with which you are acquainted and that is acquainted with you is worth more to you than a strange horse that is a little better.—*Mirror and Farmer.*

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Prof. Georgeson is collecting for the World's Fair fine samples of varieties of grains.

Prof. Kellerman has donated to the Library about a hundred volumes, half of which are bound.

A thirty-three ounce tomato was found in the gardens on Tuesday, beating last week's record by three ounces.

Professors Failyer, Graham, and Breese are home from the mountains, with a report of plenty of fish and game.

Grounds and buildings are receiving the finishing touches of the cleaning force in preparation for next week's crowds.

Visiting delegates from the Fifth District Convention of the Christian Church found much of interest in a visit to the College on Friday.

The Experiment Station is likely to present at the State Fair this year an excellent show of varieties of grapes, potatoes, corn, and sorghum.

Prof. and Mrs. Olin reached home on Wednesday, just in time to enjoy the bracing atmosphere with which all Kansans are filling their lungs.

Six boxes of specimens have been received from Ward, of Rochester, to complete the geological collection. Further mention will be made of these specimens when in place.

Mr. Enos Harrold has been appointed Foreman of Ironwork in the Mechanical Department. Mr. Harrold is an excellent practical blacksmith and machinist, and will use the increased equipment in iron work to good advantage.

Mr. B. E. Benedict, of Diamondal, Michigan, a former pupil of Pres. Fairchild, paid a visit to the College on Wednesday. He found in his brief stay much to admire, and expressed surprise at the beauty of the grounds and buildings.

The conversion of the old reading room into a Library addition adds somewhat to the comfort and convenience of students, but will be found wholly inadequate for the growth of the next two years, before which time relief cannot be obtained.

A Colliau cupola for the new iron foundry in the Mechanical Department has been received. Its fifty-foot stack will make a noticeable feature in the group of buildings devoted to mechanics. As ordinarily worked, it will melt from one-fourth to two tons of iron each heat.

In former years it has been the custom of the city to free the walks leading to the College from weeds before the opening of the term. Appearances indicate that the students will be compelled to take the middle of the street this year, the walks being almost impassable.

The Library has received from the Government Experiment Station at Washington a full set—nine volumes—of the famous Rothamsted field and feeding experiments, bound in full morocco. The set is one of many sent to this country by the English Government for distribution among the Experiment Stations.

In developing the plates made in Colorado, during the recent trip. Professors Failyer and Breese find many of them worthless, having been exposed in some unaccountable manner to the light. Some of the most interesting exposures of game and fish—those upon which the party depended for verification of their stories of prowess—are numbered among the spoiled plates.

It is necessary to call attention to the fact that telegraphy is no longer taught at the College. By a slip in the use of stereotyped plates the INDUSTRIALIST incidentally advertised this among the other industrials; but the office is dismantled, and the line is removed entirely. This step has been contemplated for many years, because the prac-

tice has not given a discipline that could be of permanent use, and many were inclined to make it merely a means of pleasure. Upon remodeling the course last Spring, the Board and Faculty decided to strike telegraphy from the list of possible industries.

GRADUATES AND STUDENTS.

Ben Skinner, '91, teaches the home school at Fairview.

R. A. Clark returns from Ohio to enter Third-year classes.

F. A. Waugh, '91, has taken charge of the new agricultural department of the Topeka Capital.

H. S. Willard, '89, called this week prior to his return to Kansas City for his second year in the Medical College.

S. Van Blarcom, '91, is off duty for a few days from mail service, and naturally gravitates to the College precincts.

P. S. Creager will teach for a year at Jamestown, studying meanwhile in preparation for a legal course of two years at Ann Arbor.

Augustine Beacham, '80, hopes to take a post-graduate course for Master's degree, while acting as Principal of one of the Seattle schools the coming year.

Maude Whitney, Third-year in 1890-91, will graduate soon from a Kansas City business college, and expects to become book-keeper in a Kansas City business house.

A daughter graces the home of A. C. Cobb, '88, and Lucy Van Zile-Cobb, Third-year in 1886-87. Congratulations may be addressed to Wagoner, Indian Territory.

S. N. Peck, '87, spent a few hours at the College yesterday afternoon on his way home. He now considers himself one of the "old hands" in the Santa Fe Shops at Topeka.

K. C. Davis, '91, was at the College yesterday en route to Jackson County, where he teaches the coming year in the Government Indian School. His post-office address will be White.

Franc E. Green, Third-year in 1888, of Chad-dock College, Quincy, Illinois, has spent her vacation at her home in Manhattan. She returns to the place of Piceptress, with increased salary.

H. W. Jones, '88, succeeds H. F. Roberts, Third-year in 1887-88, as local writer on the Manhattan *Nationalist*. Mr. Roberts returns to the University to take a course in the Law Department.

E. M. Fairchild is spending a few days at home after his summer's work in Goodland, where he preached to the Congregational Church. He leaves soon for another year's study in Andover Seminary.

H. R. Phillips, Second-year last term, writes from Diamond Springs that he will be unable to attend College this year owing to the slow healing of a compound dislocation of the shoulder, caused by his being thrown from a horse. He hopes, however, to return next year.

J. S. Gould, Third-year in 1888, called upon his many friends at and about the College this week, while on his way to Chicago, where he is to pursue a course in the Congregational Theological Seminary. He has had excellent success in teaching with the New West Educational Commission the past two years.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, or Printing. Young women may take Sewing, Printing, Floriculture, or Music. All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year, upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States History. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2d. Certificates of passing the grammar grade in any city school with a course of study approved by the Faculty, when properly signed by the City Superintendent.

3d. Kansas teachers' certificates issued by the County Board of Examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.			
Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Sumner,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		
CITIES.			
Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Salina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solomon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

THE REVISED COURSE OF STUDY.

FIRST YEAR.	
Fall Term:	Algebra. English Analysis. Geometrical Drawing. Industrial.
Winter Term:	Algebra. English Composition. Book keeping. Free-hand Drawing three times a week. Industrial.
Spring Term:	Algebra. English Structure. Botany. Industrial (Carpentry or Sewing).
SECOND YEAR.	
Fall Term:	Geometry. Elementary Chemistry. Horticulture. Industrial.
Winter Term:	Geometry completed, Projection Drawing. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking).
Spring Term:	Anatomy and Physiology. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy).
THIRD YEAR.	
Fall Term:	Trigonometry and Surveying. Agricultural Chemistry. General History. Industrial (Farm and Garden).
Winter Term:	Mechanics. Constitutional History and Civil Government. Rhetoric. Industrial.
Spring Term:	Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week; Drafting two hours. Industrial.
FOURTH YEAR.	
Fall Term:	Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
Winter Term:	Logic, Deductive and Inductive. Zoology. Structural Botany. Veterinary Science or Floriculture. Industrial.
Spring Term:	Geology. Political Economy. An elective in Agriculture, Horticulture, Mechanics, or related sciences. Industrial.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Manhattan schools will open next Monday.

The Board of Education of Minneapolis has rented the second story of the City Hall for school rooms.

The Salina papers complain of petty thieving carried on all over town, and ascribe much of it to schoolboys.

Salina Normal University opened last Tuesday with a fair enrollment. The total number of pupils for the past year was 528.

The State Normal School at Emporia opened last Monday with an enrollment of 800 students. The Faculty expect to increase the number to 1,800 or 2,000 before commencement.

In speaking of hygienic matters with regard to common schools, the *Atchison Globe* says: "The people don't bathe often enough. Most people speak of taking a bath as if it was an unusual occurrence, when it should be as ordinary an affair with them as eating their breakfast. All the new health rules say that it should be taken once a day, in cold water, and the first thing after rising in the morning."

Prof. George G. Ryan, Principal of the Leavenworth high school, has resigned his position to become Superintendent of the schools of Brunswick, New Jersey. A considerable increase in salary is the chief reason of his acceptance of the call. Prof. Ryan is an educator of rare ability, and Leavenworth loses much in his departure. It is to be hoped that this exodus of Kansas school men will not be permitted to continue any longer.

Trouble is likely to result over a contract for coal recently awarded by the Haskell Institute at Lawrence. It seems that bids were made as follows: Rich Hill, Mo., mine, \$3.10 per ton delivered; Leavenworth Home Mine Company, \$2.70 per ton delivered; the Penitentiary mine, \$2.60 per ton delivered. The Rich Hill mine, the highest bidder, secured the contract. The Indian Commissioner at Washington is investigating.

Regent W. C. Spangler of the State University says: "From the greatly increased correspondence and from the large number of old students who are making preparations to return, the prospects for a greatly increased attendance at the University this fall are very good. The many high schools in the State that have adopted the University course have graduated their first classes, and a large per cent of these graduates will enter the University this fall. It is expected by those connected with the University that the attendance will be larger this year than at any time heretofore. The Law Department has been entirely reorganized. Four new instructors have been added and the library has been largely increased. The attendance in this department will be much larger than last year."

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

LIFE ON THE FARM.

Correspondents of the New Hampshire *Mirror and Farmer*, in discussing farm life, have the following among other good things to say:—

MAKE A BUSINESS OF IT.

Mr. J. R. Milliken, of Dracut, Massachusetts, contributes his mite toward illuminating the farm question, as follows;—

"I read the 'Take up the Pen' column with great interest, and I want to add my testimony to the farm side. Speaking of getting a living on the farm, I am satisfied that if any one puts the same energy into his business that successful men in other callings do, he can live as well on a farm as he can almost anywhere else. Farming does not consist of sitting at the grocery store and telling stories. It needs a man with brains, who knows how to save the most manure and properly apply it, in order to grow the best crops and bring the farm up to the highest fertility. Perhaps the farmer does not make as much money as some who have their thousands invested in speculative enterprises; but he is not so liable to fail and not have a dollar left."

REFINEMENT ON THE FARM.

"A Subscriber," who, we suspect, is a lady, sends us the following sensible lines from Peterborough:—

"I am much surprised at the way your over-sensitive correspondent writes of the life of a farmer's family. She evidently compares it with the life of those families in the city who have wealth, either accumulated by themselves or others. If she would compare the life of the farmer with that of the artisan in the city, she would find much in favor of the farmer, and she would find many of the latter who would be very glad of the chance of raising colts or raising anything wherewith to educate their children.

"And now, let me ask that good woman why it is necessary for farmers to have coarse manners, to use coarse language, to sit down to coarsely laid tables, or to eat coarser food than they wish for? As for clothing, everyone who labors should dress suitably for the labor he performs, whether in city or country. I see no reason why the life of a farmer's family should not be as refined and elevated as that of any one of the professions; and when farmers respect themselves and their calling as they should, and take the place in the community they should take, there will be no fears of sneers from others. I have had an opportunity of seeing all phases of life, in city and country, among the wealthy, the poor, and the so-called middle class, and my decision is for the farmer."

FARM VS. CITY LIFE.

"A Farmer's Boy in the City,"—one who is older than he was when he went there—speaks emphatically as follows:—

"I saw, under the head of 'Take up the Pen,' over the signature of 'Farmer's Wife,' an article the title of which is 'A Woman's Views of Farming.' She asks, 'Does farming pay?' In reply, I will say, if the farmer spent as much thought and systematic labor on and about the farm as the merchant does about his business, yes. To illustrate what I mean, I will give the case of two brothers, both smart, able-bodied young men. One came to Massachusetts and spent two years on a milk, vegetable, and stock farm near Boston, where he had a chance to learn the business of farming, which I claim is as much of a business, or even more, than selling goods. He then returned home and bought a small farm. He soon found his farm was not large enough for him. He sold it and bought a larger one, running in debt \$4,000, and has paid for it from the products of the farm, and is out of debt. The other brother, who knows all about farming and declares it does not pay, had his farm given to him by his father. It is a good one and well stocked, but he is in debt to-day. The first one, let me say right here, takes the *Mirror and Farmer*; the second one cannot afford to.

"Where do most of our smartest men in the city come from? From the farms—the great workshops of nature. The editor speaks volumes of truth when he says: 'Neither you nor they see the inside of city life.'"

The *Jersey Bulletin* says: "A good Jersey cow will make as many pounds of butter in a year as a good steer will make beef; the butter sells at from 30 cents to \$1 a pound, the beef at from 3 to 7 cents. Comment is needless."

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

MANHATTAN ADVERTISEMENTS.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dungola shoes, \$2.00.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75."

To file

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 19, 1891.

NUMBER 4.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

INDUSTRIAL EDUCATION IN THE UNITED STATES.

BY PROF. J. D. WALTERS.

THE necessity of aiding the producing classes, who form such a large part of our population, by an education leading toward practical life rather than away from it, has been strongly agitated by many philanthropists and leading educators ever since the financial panic years of the fifties. It was clearly perceived that the rapid development of the industries of Europe, especially in the manufacture of articles into which art enters as a factor, was due to a great extent to the systematic efforts made in industrial and art education. The world exhibitions of London, New York, and Paris had demonstrated these facts beyond a doubt, and had shown that America was far behind in the race. Our exports, though showing a small surplus over imports, consisted almost entirely of articles of food, representing low-priced labor, while the imports consisted of articles of fine and industrial art, such as silk ribbons, millinery goods, kid gloves and other fine leather goods, jewelry, chronometers, musical instruments, fine linen goods, brass and zinc castings, mathematical, optical, and physical instruments, lithographs, art prints, oil paintings, stationery, etc., representing skilled and high-priced labor. Something had to be done, though the country was on the eve of a gigantic civil war which was to involve another phase of the question of industrial life and industrial progress—that of free labor.

A first step was the introduction of industrial drawing into the public schools. Massachusetts, the leader in so many educational movements, commenced this work by asking the English Government for an experienced and enthusiastic art teacher, who might organize and put in motion this new departure. England complied, and detailed Professor Walter Smith, art director of South Kensington Art School, an enthusiast who undertook the difficult task with rare ability, courage, and a clear vision of the object of his mission. A series of text-books was issued, art normal schools were organized, regular art exhibitions inaugurated, and the results were so promising that other States soon followed with more or less energetic efforts.

After many years of isolated, and often misdirected efforts by States and cities, Congress took the matter in hand, and in the session of 1859-60 passed a bill giving each State in the Union as many times 30,000 acres of wild Government land as such State had Senators and Representatives in Congress, for the exclusive purpose of founding and maintaining "a college for the benefit of agriculture and the mechanic arts." The bill was opposed by the members of the Southern States on the ground of Federal interference with State rights, and was vetoed by President Buchanan. In the following winter, however, it was passed again, championed once more by statesman J. A. Morrill of Vermont, and this time it became an act.

This grant, equal to a cash appropriation of at least \$50,000,000, gave industrial education a powerful boost, but the battle was not won as yet. Most of the State Legislatures had no understanding for a question of this kind, and little sympathy with the classes of people to be benefited. The land was fooled away to hungry land trusts for half, or less than half, of its real value, and in many cases the proceeds were given to universities for the purpose of organizing departments of agriculture and the mechanic arts alongside of the departments of language, literature, law, and engineering. In other States, as in Kansas, this mistake was not made. The funds were properly

husbanded, and the college was built up as a separate institution.

The establishment of the Agricultural Colleges by the Morrill act was closely followed in 1865 by the founding of the first apprentice school for mechanical engineers in America, that of the Worcester Free Institute. There had been departments of applied science in several of the older universities long before this time, but the Worcester Free Institute was the first school which taught actual work in a systematic manner in a well-equipped school machine-shop. It was founded by the generous gift of John Boynton, of Templeton, Mass., who gave \$100,000 for its "endowment and perpetual support." Ten months later, Ichabod Washburn, of Worcester, added \$75,000, "to erect, equip, and endow a machine shop which should accommodate 20 apprentices, and a suitable number of skilled instructors," and to carry on the shop partly as a commercial establishment, and partly as a school. The apprentices were to be "taught in the use of all shop tools, in working wood and metal, and to be otherwise instructed, much as was customary fifty years ago for boys learning a trade." The institution was opened for students in 1868. In 1870, under the direction of Professor Robinson and President J. M. Gregory of the University of Illinois, a wood-working shop was added to the appliances for the course in architecture, and an iron-working shop to the course of mechanical engineering in that institution. In 1871, the Stevens Institute of Hoboken, New Jersey, endowed by Edwin A. Stevens, as a school of mechanical engineering, fitted up a series of shops. The next step was taken in 1872, by Washington University in St. Louis, in providing for its engineering students systematic instruction in wood and metals. The first work undertaken in the St. Louis institution was the construction of models for the illustration of mechanical principles, but the inability of the students to use tools soon led the efficient director, C. M. Woodward, to devise exercises for the sole purpose of tool-instruction.

This was the condition of industrial education in the Centennial year of American Independence. In the meantime, Europe had made similar efforts in bringing more system into the work of the school-shop. In 1868, Victor Della-Vos had introduced into the Imperial Technical School of Moscow the so-called Russian method of class-instruction in the use of tools. The value of the work of this Russian pedagogue lay in the discovery of the analytical method of tool-instruction,—the only true method of teaching manual work. It had, by the time of the world exhibition of Philadelphia, already been adopted by a number of European schools, and their extensive exhibits became the instructors of our directors of such institutions, showing, with remarkable fullness and logical arrangement, the true educational methods of tool instruction. The honor of adopting it first belongs to the Massachusetts Institute of Technology under the directorship of President J. D. Runkle, who looked deeper into the problem than even Della-Vos, seeing at once that shop instruction had an educational value far beyond its practical or commercial value, and who predicted that on this account it would some day become a part of popular education in this country. Through the vigorous endeavors of Prof. Runkle, the Russian system of analyzing and grading shop work was adopted at once by all of the pioneer institutions named, and has since been followed by nearly all the industrial schools of the country.

The introduction, with some modification, of

the Russian system of slojd into the American and European industrial schools has undoubtedly been the greatest step forward in the field of education since Froebel founded the Kindergarten, and it may be said that Delia-Vos and Runkle "buildd even better than they knew." It was quickly observed in every school where thinking teachers had a fair chance for observation that the educational value of slojd, properly taught, could hardly be overestimated. The logical result of this pedagogical discovery was the transformation of the old trade or engineering school into the modern manual training school, in which systematized manual labor occupies an equal position with language study, history, mathematics, and the sciences,—entitled to this position not so much on account of its direct economic value,—although this can hardly be overestimated,—but chiefly because of its great educational value. A few years after the Centennial Exhibition there was hardly a city of 25,000 inhabitants that had not founded a manual training school, and today there are numbers of institutions of the kind, as complete and well-equipped as could be desired by the most enthusiastic friends of the new education.

THE STATION AT THE FAIR.

BY PRES. GEO. T. FAIRCHILD.

THE exhibit of the Experiment Station at the State Fair this week is highly spoken of by all observers. One gentleman pronounces it worth a journey of four hundred miles to see, and multitudes express the opinion that it is the best show on the grounds. The exhibit fills a building 28 x 56 feet with varieties of wheat, corn, sorghum, sugar beets, potatoes, tomatoes, cucumbers, and grapes, with some additions in the way of Japanese beans and various forage plants. These are all plainly labeled, so that even a couple bound for the races can read, and the very sight of the samples is itself an advertisement.

The grapes, nearly 100 varieties, are as fine a show as can be seen. The clusters, having been covered for nearly two months on the vines by paper sacks, were not uncovered till laid upon the plates at the Fair, and show their natural bloom in perfection. The potatoes, over 200 varieties, are in baskets, full of big and little as they came from the hill, and show the average size as well as shape and quality. Twenty-five varieties of saccharine sorghums are shown as they grow, with the sugar content marked upon the labels. A hundred non-saccharine sorghums, grown for fodder and ensilage, show all the varying qualities. A hundred bundles of corn in the stalk with the ears uncovered, in part, illustrate the qualities of as many different varieties, while the leading kinds are shown also by a peck or more of ears. Wheat culture is illustrated by heads of 240 varieties, one hundred of which are shown in bundles; six leading varieties are further shown in two-bushel sacks of grain. Tomatoes appear in some forty varieties, and cucumbers in thirty. The sugar beets are shown in twenty standard varieties, while the most desirable shape and size are brought into contrast with the least desirable.

A brief folder distributed to visitors describes the origin of the Station and enumerates its publications as follows:—

The Station was organized as a distinct department of the College February 8th, 1888, under an act of Congress approved March 2nd, 1887, and accepted by the Legislature March 3rd, 1887; but made effective by the first appropriation of \$15,000 February 1st, 1888. It has had under observation during the past season over 4000 plats of grains, vegetables, fruits, and shrubs for determining the best varieties, the best methods of seeding and culture, the best preventives for various diseases, destructive insects, etc. The exhibit gives but a small fraction of the results of experiments covering nearly a hundred acres, and employing a strong force of experts.

Since its organization the Station has issued, or will soon issue to the farmers of the State the following publications, distributed free on application:

BULLETINS.

- No. 1, April, '88, "Organization, Equipment, and Aims."
- No. 2, April, '88, "Experience with Cultivated Grasses and Clovers."
- No. 3, June, '88, "Life-history of two Orchard Pests."

- No. 4, September, '88, "Experiments with Wheat."
- No. 5, December, '88, "Sorghum, and Sorghum Blight."
- No. 6, July, '89, "Silos and Ensilage."
- No. 7, August, '89, "Experiments with Wheat."
- No. 8, October, '89, "Preliminary Report on Smut in Oats."
- No. 9, December, '89, "Experiment in Pig-feeding."
- No. 10, May, '90, "Notes on Conifers for Kansas Planters."
- No. 11, July, '90, "Experiments with Wheat."
- No. 12, August, '90, "Preliminary Experiments with Fungicides for Stinking Smut of Wheat."
- No. 13, August, '90, "Experiments with Oats."
- No. 14, December, '90, "Winter Protection of Peach Trees, and Notes on Grapes."
- No. 15, December, '90, "Additional Experiments and Observations on Oat Smut made in 1890."
- No. 16, December, '90, "Experiments with Sorghum and Sugar Beets."
- No. 17, December, '90, "Crossed Varieties of Corn, Second and Third Years."
- No. 18, December, '90, "Experiments with Forage Plants."
- No. 19, December, '90, "Germination of Weeviled Peas—Garden Notes on Potatoes, Beans, and Cabbage."
- No. 20, August, '91, "Experiments with Wheat."
- No. 21, August, '91, "Fungicides for Stinking Smut of Wheat"
- No. 22, August, '91, "Smut of Oats in 1891. Fungicides for Loose Smut of Wheat. Spraying to Prevent Wheat Rust."

REPORT FOR 1888.—CONTENTS.

- Waste of Manure in Summering Manures in the Yard.
- Experiments in the Corn Field.
- Experiments with Wheat.
- Forage Crops.
- The Milk and Butter Product as Influenced by Feeding.
- The Pressure of Ensilage on the Walls of the Silo.
- Relation of Rainfall to the Corn Crop.
- Shrinkage of Hay in the Mow.
- A Comparison of Varieties of Sorghum.
- A Test of the Keeping Qualities of Sorghum.
- An Examination of Individual Stalks of Sorghum with a View to Improving the Plant.
- A Trial of Fertilizers on sorghum.
- A New Method of Milk Analysis for the use of Dairymen.
- Spraying in the Apple Orchard.
- Observations upon Injurious Insects.
- Trials of Varieties of Potatoes.
- Trials of Varieties of Peas.
- Trials of Varieties of Tomatoes.
- Sorghum Blight.
- Hackberry Knot.
- Experiments in Fertilization of Varieties of Corn.
- Germination of Weed Seeds.
- The Fungus Parasites of Weeds.

1889.—CONTENTS.

- Experiments with Corn, Wheat, and Forage Crops.
- Silos and Silage.
- Pig-feeding Experiment.
- Pigs from Mature and Immature Parents.
- Work upon Sorghum.
- Analysis of Feeding-stuffs.
- Composition of Corn at Different Stages of Growth.
- Ammonia and Nitric Acid in Atmospheric Waters.
- Comparative Trials of Garden Beans, of Peas, of Potatoes, of Tomatoes.
- Some Insects Injurious to the Bean.
- Loose Smuts of Cereals.
- Crossing Varieties of Corn
- Receptivity of Corn-silk.

1890.—CONTENTS.

- Summary of Bulletins 10 to 19, with index, and outline of other work undertaken.

CURE FOR RHEUMATISM.

Dr. J. D. Staple writes to the *Lancet*, indorsing the external application of oil of wintergreen as a remedy in the treatment of sub-acute and chronic rheumatism. In forty cases of sub-acute rheumatism, a liniment composed of equal parts of olive oil and oil of wintergreen was applied to the joints, which were afterward wrapped in cotton wool, and lightly bandaged. In each case the pained ceased from five to six hours after the application. It is in the more chronic cases that the oil of wintergreen is most useful. Indeed, in more than one hundred cases, there were only two who did not experience any relief from the liniment. In this last class of cases it is most essential that the liniment should be thoroughly rubbed into the affected parts.

The fact of the work of the schools tending largely to induce young farmers to go into professions has been cited as an unanswerable argument against encouraging higher work among farmers. At the same time the fact remains that farming will never be the profitable business it should be until this same higher education becomes more general. Let the facts be disguised as they may, it is still apparent to the student that the farmer who discourages the dissemination of scientific information in his class is, more than any other man, standing in the way of its progress. The question before the farmer should not be, "Shall I educate my children or not?" but it should be, "How can I best educate them without in that process driving them into other pursuits?" The proper solution of this question is one of the most important things now commanding agricultural attention.—*Exchange*.

KANSAS THRIFT.

The report of the Kansas State Board of Agriculture estimates the present wheat crop of that State at 55,000,000 bushels, the largest in her history. This bountiful crop will enable Kansas farmers to lift a part of the farm mortgage indebtedness so greatly magnified by the calamity prophets. Bountiful as this is, it does not come up to the expectations raised by conditions earlier in the season. As the result of a special inquiry into the causes of the falling off of 20 per cent in respective yield, the Secretary of the Board places poor farming first. The sooner Kansas farmers realize that no new-fangled system of finance, however alluring, that no political revolution, will make up the losses of poor farming, the better off they will be.—*Farm and Fireside*.

The editorial review by counties of the financial situation in Kansas, which appears each day in the *Journal* of this city, is in the nature of an exceedingly valuable service to that State. It is an exhibition of enterprise and of good will toward a commonwealth whose destinies are closely linked with those of Kansas City, which is deserving of much praise. That it will be appreciated in Kansas goes without saying, and it will do much to correct the slanders about Kansas which have been circulated abroad by the apostles of disaster. It is gratifying to know that the facts obtained by the *Journal* and presented in such an attractive manner are wholly encouraging, and show a rapid liquidation of the mortgage indebtedness of Kansas. The figures are gathered from trustworthy sources, and the data bear the impress of truth and accuracy.—*Kansas City Star*.

There will be three sugar mills in operation in Kansas this fall, one at Topeka, one at Ft. Scott, and one at Medicine Lodge. It is claimed that the latter has paid from the start, and as the company has enlarged its plant this year, it is reasonable to suppose that it has not proved a losing venture. The mill at Topeka was burned last year, and has been rebuilt with improved machinery. That would indicate that there is a profit in the manufacture of sorghum at that point. The Ft. Scott mill has been in operation for some years, and appears to be prosperous. Each succeeding season witnesses a greater degree of perfection in the process of making sugar from sorghum, and it is believed by persons who have given the matter careful and intelligent attention that sugar-making will become in the near future an important industry in Kansas.

IS SOIL INEXHAUSTIBLE?

The *American Agriculturist* practically says no. This is how it arrives at this conclusion: One foot in depth of a fairly good agricultural soil contains 4,000 pounds of phosphoric acid, 8,000 pounds of potash; 16,000 pounds of nitrogen and lime, magnesia, soda, chlorine, sulphur, and silica to afford food for all the crops which these three elements can feed per acre. After farmers by careful and skillful cultivation have exhausted all this great store of food in the uppermost foot of this soil, which will require several centuries, will the soil be exhausted? Not at all. As the land is gradually changed into vegetable growth, and the surface is removed as farm crops, as it gradually deepens, the subsoil which contains the very same elements becomes fitted for plant food. And thus the imperishable nature of matter applies to the soil, which can never be exhausted during all the ages which are to come. All that mankind has to do is to use its arts, under the instruction of science, to develop this latent fertility of the soil, and to go on feeding the human race until the end, if an end ever shall come, when the earth shall no longer exist as a fit habitation for mankind.

A physician sensibly suggests through the *New York Tribune*, that "there is needed a simple, plain handbook of animal ailments, describing symptoms apparent to the plainest understanding, and then suggesting simple treatment. Above all, the greater part of the book should be taken up with directions for preserving health by attention to feeding, watering, working, stabling, and the rules of general hygiene."

Thirty-two Kansas newspapers are edited by women. That old-time fad of licking the editor on slight provocation is rapidly dying out in the Sunflower State.—*Kansas City Star*.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at *par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Assistant Breese spent a day at the State Fair.

The *Kansas Farmer* of last week contained an exhaustive "write-up" of the College and Station, with illustrations.

Engineer Gundaker was called last week to the death-bed of his father in Pennsylvania. His return is daily expected.

Dr. Mayo attended the meeting of State Veterinary Society at Topeka Thursday, and found himself elected Secretary.

H. Mayer, of the Santa Fe Railway Detective Service, called at the College last week to make arrangements for his son to spend a year here.

Prof. Popenoe spent Friday at the State Fair, where his display of grapes from the Experiment Station attracted the attention of horticulturists.

Prof. Georgeson read a paper before the Stock Breeder's Association at Topeka Thursday evening on "The Head of the Herd." The paper was well received.

Secretary Graham spent Thursday afternoon and evening in Topeka, looking over the State Fair and attending the meeting of the Stock Breeder's Association.

Assistant Mason has spent most of the week at the State Fair engaged in putting up and overseeing the Station display. His taste appears in the general neatness of the array.

The city, through Street Commissioner Sears, has put College people under obligations by the thorough manner in which the walks leading to town have been freed from weeds.

The Manhattan Horticultural Society met in Horticultural Hall on Thursday afternoon of last week. Many fine specimens of fruit were displayed which added interest to the session.

The total enrollment to date is 459—41 more than last year, distributed as follows: Post-graduate, 7; Fourth-year, 38; Third-year, 63; Second-year, 120; First-year, A, 168; First-year, B, 63.

The class in Blacksmithing make good use of the new forges and material even though the iron shop is not yet enclosed. A large force of students are engaged on the building, and three weeks more will no doubt find it completed.

Pres. Fairchild looked in for a few hours of Wednesday upon the State Fair. The multitude of office duties connected with adjusting large classes to their work made a longer stay impossible, though the show was one of the most attractive yet made.

Prof. Bolton opened the Friday afternoon lecture course yesterday with an account of the extent and management of European armies, and the method of drill through the fall maneuvers now in progress. A comparison of the compulsory enlistment with our volunteer system, and the immense armies with our skeleton of an army, added to the interest.

The friends of H. M. Cottrell, Assistant in Agriculture, will rejoice with the INDUSTRIALIST at his appointment as General Superintendent of Vice-President Morton's thousand-acre farm on the Hudson River, ninety miles above New York. Mr. Cottrell is engaged for a term of years at a liberal advance of salary. His three years of service here are a test of his capabilities, and he will no doubt prove equal to the tasks imposed upon him in his new and responsible position.

The twenty-fourth annual meeting of the Kansas Academy of Science will be held at Ottawa, on Wednesday, Thursday, and Friday, October 14th, 15th, and 16th. Titles of papers to be read, with brief abstracts, should be sent to the Secretary,

E. H. S. Bailey, Lawrence, as soon as possible, so that the programme of the meeting may be sent to the members.

The new planer received this week for the Iron Shop is a most substantial looking piece of machinery. It will plane a piece of iron as large as two feet square and six feet long.

GRADUATES AND STUDENTS.

Mary Pierce, Second-year in 1890-91, will teach school in Iowa this year.

Rev. A. J. White, '74, of Atchison, is visiting his mother in Manhattan.

Jennie R. Smith, Second-year in 1888-9, attends Washburn College this year.

C. W. McCord, Second-year in 1890-91, teaches school four miles east of Leonardville.

Anna Snyder, '88, of Oskaloosa, visited the College last week to see a brother enrolled.

Lou Hessin, student in 1889-90, is attending Harcourt Place Seminary, Gambier, Ohio.

Mima Carey, Second-year in 1889-90, has returned from California to her home in Manhattan.

Lyman Harford, H. C. Peoples, and B. Buchli, Jr., former students, are teaching in Wabaunsee County.

G. L. Melton, Third-year in 1890-91, will spend a year on the farm, and will be a member of the class of '93.

J. N. Bridgman, '91, has charge of the athletics class, which meets daily at eight o'clock and on Friday afternoon.

Carrie Kimball, '76, of Garden Grove, California, sent by Mrs. Kedzie an ostrich egg which enriches the museum.

Kate H. Pierce, Second-year in 1890-91, will be domestic girl for the home family at Winfield, Iowa, for the coming year.

G. L. Clothier, R. A. McIlvain, and F. C. Sears, Fourth-years, aided in putting up the exhibit at the State Fair this week.

H. B. Gilstrap, '91, is putting into practice the knowledge of agriculture gained during his college course, on a farm near Geuda Springs.

G. E. Stoker, '90, may be addressed at Cambridge, Mass., where for two years he will take special studies in preparation for the law course.

The seven resident post-graduate students are Minnie Reed, '86; Pearl Dow, Bessie Little, Delpha Hoop, Lottie Short, Callie Conwell, and J. N. Bridgman, '91.

W. P. Burnham, Third-year in 1878-9, First Lieut. Sixth Infantry, has been detailed as Professor of Military Science and Tactics at St. John's Military School, Manlius, New York.

Lottie J. Short, '91, won first prize in the prize menu competition of *Our Grange Homes*, an agricultural paper of Boston. The menu, and the recipes for each dish, were published in a recent issue of that paper.

Of former students returned after an absence of more than a year we notice the following: F. C. Sears, Third-year in 1888-9; Second-years, E. L. Platt, 1885-6, Isabel Frisbie, 1887-8, M. O. Bacheller, 1888-9, Jessie M. Stearns, 1889-90, W. J. Yeoman, 1889-90; First-years, W. Harling, 1887-8, E. K. Moody, 1887-8, F. W. Ames, 1889-90, H. W. Mattoon, 1889-90, Maggie Stewart, 1889-90.

Fanny Waugh, '91, should, according to the INDUSTRIALIST of two weeks ago, be teaching the home school near McPherson, but she now writes from Menomonie, Wisconsin, that she is well pleased with her position as Superintendent of Sewing in the High School, and that she and her classmate, Gertie Coburn, Instructor in Domestic Economy in the same institution, have in their departments excellent equipments.

Mrs. Kedzie had the pleasure of meeting the following old students during her visit to California: Carrie Kimball, '76, at Garden Grove; Margaret Thurston at Leandro. Nettie Thurston at Orange. Carl Crew at Santa Anna, D. A. Webster at Long Beach, Fred Kimball and Ed. Burgoyne at Los Angeles, Lillie Bridgman at Berkeley, and Henry Greeley, A. J. and H. V. Rudy at Fresno. Grant Allen and Geo. Wake were encountered at Salt Lake City.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States History. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2d. Certificates of passing the grammar grade in any city school with a course of study approved by the Faculty, when properly signed by the City Superintendent.

3d. Kansas teachers' certificates issued by the County Board of Examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.			
Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Sumner,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		
CITIES.			
Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Salina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solomon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

Applicants of mature age who, for lack of advantages, are unable to pass the full examination may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

INDUSTRIAL TRAINING.

Closely adjusted to the course of study is industrial training in several of the arts, to which each student is required to devote at least one hour a day. Among the lines of training each student may select, with the approval of the Faculty, except in terms when special industrials are required. Young men may have Farming, Gardening and Fruit-growing, Carpentry, Cabinet-making, Iron-work, or Printing. Young women may take Sewing, Printing, Floriculture, or Music. All young men must have their industrials for one term in the carpenter shop before completing the first year; and during the spring term of the second year and the fall term of the third year upon the farm, gardens, and orchards. Young women take their industrials for one term of the first year in sewing, and for the winter and spring terms of the second year in the kitchen laboratory and dairy.

COLLEGE SOCIETIES.

September 11th
A goodly number of Ionians met together Friday for the purpose of electing new officers. After singing and devotion, the following were elected: President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Pheobe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebi Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors—Alice Vail, Maud Knickerbocker, and Edith McDowell. The programme for the day was postponed until next Friday. L. D.

September 12th
The first session of the Webster Society for the new year convened Saturday night. At eight o'clock Vice-President Tucker sounded the gavel and called the meeting to order. Thirty-one members answered to roll-call. Devotional exercises were conducted by J. Frost. The remainder of the evening was devoted to electing officers for the ensuing year, as follows: President, W. P. Tucker; Vice President, L. S. Harner; Recording Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. H. Mattoon favored the Society with instrumental music on the guitar, which was highly appreciated. The Society extends a hearty welcome, especially to new students. It admits only gentlemen as members. M. F. H.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Prof. H. M. Kingery, of Emporia College, has been called to the chair of Latin and Literature of Wabash College, Indiana.

F. S. Dietrich, for several years Professor of History in Ottawa University, has left the ranks of the profession to practice law. His shingle swings in the breezes of Blackfoot, Idaho.

The Atchison papers state that the most popular volume in the Atchison city library is "Ben Hur." Three copies of the book have been worn out, and the fourth one is to be purchased by the Association.

The new School Board of Manhattan has adopted the rule that teachers shall not engage in any employment, temporary or otherwise, which will interfere with the discharge of their school duties. Another rule reads: "Any woman teacher who marries thereby forfeits her position."

A great deal is being said and written just now by the politicians and papers of the State about the inability of the large cities to raise means to open the schools this fall. The new school law for cities of the first-class, passed by the last Legislature, will work a delay in opening the schools of several cities to January, 1892, the School Boards being in debt, and the new levy not being available until January next. Kansas City (Kan.) proposes to open the schools, and maintain them until January by means of private subscriptions and charging a small tuition fee.

Prof. I. C. McNeill, Principal of the Morse school of Kansas City, has been appointed Assistant Superintendent of the city schools to succeed Frank A. Fitzpatrick, who recently resigned to accept the Superintendency of the public schools of Omaha. Prof. McNeill was Superintendent Greenwood's choice, and his name had been presented to the Board at the time of Prof. Fitzpatrick's election. Prof. McNeill is yet a young man, being 36 years of age, but he has much valuable experience and training as a tutor. He came to Kansas City in 1879, and was appointed teacher in the Washington school. He remained there a year and went into business. This he also soon gave up to accept the position of Superintendent of the schools at Tipton, Mo. He remained there two years and then returned to Kansas City, where he has been ever since. Prof. Minckwitz of Topeka, was chosen at the last meeting of the Board as Professor of Greek and Latin in the high school, but has declined the offer. Prof. M. Bigley, Principal of the Switzer School, was transferred to the Morse school, to succeed Prof. McNeill, and Mrs. Josephine Hermans, a teacher in the Switzer building, was promoted to Prof. Bigley's place.

The Annual Meeting of the State Horticultural Society will be held at Beloit, on Tuesday, Wednesday, and Thursday, December 8, 9, and 10, 1891. Delegates will be entertained free by the citizens of Beloit, or can secure reduced rates at the hotels. It is expected that all the railroads in the State will give reduced rates of fare. Attendants are requested to bring for exhibition specimens of fruit, garden vegetables, growth of any special character or condition of trees, etc., and flowers. Fruit for naming will receive the attention of a committee, and seedling traits an examination of their merits. Means for the suppression of insects destructive to fruits, trees, etc., will receive special consideration at this meeting, being regarded as one of the most important subjects engaging the attention of horticulturists at this time. The evening sessions will be devoted to lectures, essays, and addresses upon subjects of a general character, accompanied with music. The day sessions will be given to questions of a direct and practical relation to the successful culture and management of orchards, small fruits, flowers, and forest plantations.

ATTEND THE FAIRS.

September and October are the months in which most of the State and county agricultural fairs are held. It should be the aim of every farmer not only to visit the fairs in his county, but he should also be a liberal contributor, sending all the farm products possible. These fairs, it viewed in the proper light, are great educators, and farmers should meet at them every year with their products and stock from the farm in a spirit of friendly rivalry and discuss the different methods that have produced the yields and results they bring for

exhibition and competition. If one farmer wins a premium on a product and another one does not, the latter should congratulate the winner, and not, as is too often the case, nurse ill-will against him.

The success of one's rival should sharpen the wits, not dull them. He should be anxious to discover why he was distanced, and when the reasons are found out, overcome the difficulty, and endeavor to be a winner the next season. Such a way would be far more creditable than to let the other farmer win again on account of not profiting by the lesson the failure should have taught. Failures, trials, and hardships are the very things that have spurred men on to succeed, and when surrounded by adverse circumstances they make their victory so much the greater. These fairs are the annual pictures of agricultural progress. Every farmer who aids the fairs is but casting bread upon the waters that will return to his own benefit. The fairs also afford social enjoyment to all members of the family. Do not think you cannot afford the expense, as what you will learn will save you each year ten times the amount it costs to visit with your family your county fair.—*Exchange*.

OLD VS. NEW METHODS.

In these days of agricultural progress, the farmers who stick to old-time ways are generally the ones that are heard declaring that farming does not pay. What branch of business would pay now if it were conducted on the method of forty years ago? Could such methods stand any chance in competition with those of the present time? There are some farmers who abhor the "new-fangled" implements, as they term them, which are used by practical progressive men.

While the nation has advanced from the old stage-coach mode of transit to the palace cars, travelling more miles in an hour than could be accomplished in a whole day by the old stage-coach—the agricultural methods have also quite well kept pace with the rapid progress. Yet there are farmers who really seem to think there could be no improvement made upon the methods adopted by their great-grandfathers. The nation's progress demands a very different class of farming from that of the past. The experiment stations have demonstrated the fact that successful farming is indeed quite a science.

Failures of crops nowadays cause scientific investigations, and often the causes are discovered and effective remedies are applied to prevent further similar disasters. The time used to be when crop failures were simply considered as a divine visitation. The farmer for many years was considered a sort of nonentity, whose garb should always be of such a description that when he went in the cornfield where the scarecrow was it would be necessary to wait for him to move to tell which was the farmer and which the scarecrow. Now all this is changed, and the public recognize the fact that there is no calling that requires a person to be as fully informed on so many subjects as farming.

The farmers must be competent to judge of the merits of a good dairy cow, know the best cereals—a complete economist in very many things. He will have ample opportunity to display wisdom in many ways. He must be chemist enough to maintain the fertility of his lands while annually taking good crops therefrom. He must be sharp, to successfully dispose of his crops to the best advantage. All these and much more is the successful farmer. What other branch of industry calls for so many requirements or talents? Farming is a veritable Jack-of-all-trades, for the farmer is also expected to run the complicated mowers and reapers and other machinery as well as experts, who never bother their minds with anything else. In fruit culture he is also expected to be a horticulturist, a pomologist, etc.

The modern methods enable the farmer to be a semi-expert in these things, and unless the "new-fangled" implements are brought into use, there is no chance for success. The old-time slow manipulation will not answer at all. Improved machinery will now cut and put away in a barn the hay of a forty-acre meadow before old-time methods would allow two acres to be cut. It is such methods that are not only labor-saving, but time-savers as well, and enable the crops to be secured uninjured by storms, etc. Old-time methods were good enough once, but in the words of the song, "They don't go now." Farmers who are unreasonably prejudiced in favor of old-time methods should visit other farms and discover what progress is doing for live agriculture and learn the

fact that there are farmers today who are making thousands of dollars every year by following the requirements the present age demands in agricultural pursuits, and recognize that farming, as now carried on, is not a haphazard affair, but something that requires an apt, intelligent application of brain.—*Baltimore Sun*.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

CARE OF HORSES.

The details in managing horses, like in the management of anything else, are what count. General orders cannot be followed with best results, as a rule, unless judgment is used. Under certain circumstances different treatment must be administered, and it is the thoughtful man who takes the time to look after the details in caring for his stock that makes the greatest success in the horse business. Owners of large stables of valuable horses who have made a success in their line of work, as a rule, are men who have looked after matters personally and given the minutæ of the business the closest attention. From this the smaller owners of horses could take a hint. There are farmers throughout the country who do not pay much attention to teams which they do not happen to be using themselves, and often losses occur through the carelessness of boys or hired hands. If horses are worth owning, they are worthy of good care. If a man is too negligent to see to it that his horses have the best of treatment he should be debarred of the privilege of owning horses.—*Colman's Rural World*.

MANHATTAN ADVERTISEMENTS.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 26, 1891.

NUMBER 5.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE COLLEGE OFFICERS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director

ARTIFICIAL RAIN-FALL.

BY PROF. O. E. OLIN.

THE rain-maker of the aboriginal tribes of America and Africa was a picturesque figure, but by civilized people was not thought to advance the interests of science or agriculture to any great extent.

With the failure of his efforts, men rather settled down to the belief that in the matter of rain-fall they must wait the convenience of the elements or the goodness of the providence that controls them. They have tried various ways to make the most of the supply already given, and in this country have entered, in a preliminary way, upon a scheme of irrigation that shall conserve and direct the rain-fall and snow-fall of the mountains to the reclaiming of the semi-arid regions in the West.

While men are still discussing the feasibility of irrigation on a large scale, the news comes that rain storms can be manufactured to order, on a few hours notice, and in almost any desired quantity. This seems so much easier than excavating lake beds and digging ditches that one is anxious to believe that it is to be added to the wonders of the nineteenth century. And indeed wonders have so trod upon one another's heels in the last twenty-five years that no one but those who obtained their knowledge of science previous to that time are fully able to laugh it down and show its utter impossibility.

It has long been noticed as worthy of special remark that a rain generally falls after a great battle, and many have come to believe that cannon-ading armies make the elemental strife with which they afterwards have to contend. Adopting this theory, it was believed possible to secure rain-fall at will by producing heavy explosions in the upper atmosphere. To test this idea, the last Congress placed in its general appropriation bill an item of \$10,000 for experiments in rain-making. These experiments were placed in charge of Gen. Drydenforth, who, aided by chemists, electricians, and balloonists, has been and is still experimenting in the dryer regions of Texas. One series of experiments has been completed, with the report that while practically a failure, they are scientifically a success. Which means, I suppose, that while not enough rain fell to be of practical benefit there was enough, taken in connection with the attendant circumstances, to strengthen the theory upon which the experiments were conducted. Whether the rain came as a result or as a coincidence is of course the pivotal question.

In Canton, Ohio, Mr. Melbourne has been carrying on, at his own expense, independent experiments, in three-fourths of which he claims to have been successful. Mr. Melbourne has also been working in Dakota, and today (the 26th) he is under contract at Goodland in this State to bring a rain over an area fifty miles in radius. It is quite possible that he may succeed, for the autumnal equinox is a very favorable time for such experiments, whether managed by incantation or by explosives.

If one is startled at the audacity of these attempts he is not less confounded at what must follow if they succeed. What changes would be wrought in earth and seasons; what revolutions in agriculture; what teeming possibilities would rest on every land! With rain and sunshine and drought and cyclones under government control, we should be far on our way toward the good times of which we dream.

But—they have not succeeded yet, and it is probable that for some time to come we must get along in the old-fashioned way. Still, the fact that men of some scientific knowledge will enter upon such things with any seriousness stirs, in the minds

of the speculative, thoughts of the time when evolution shall have its perfect end; when man shall learn the secret of every law of nature, and hold in his own hands the mastery of his environment.

IMPROVED SORGHUM.

BY PROF. G. H. FAILYER.

FOR the past three years the Chemical Department of the Experiment Station has been engaged in attempts to improve sorghum as a sugar plant by seed selection. The plan has been to select the seed of those stalks with an especially high sugar content, regard being had also to the amount of glucose and to the yield of juice and size of stalk. Last year's result, taken with those of the two previous seasons, seemed to prove the feasibility of this plan for improving. In bulletin sixteen occurs a table comparing the results with selected seed with those obtained when the general, or average, seed was used. Although some of the seasons were quite unfavorable, and there was, presumably in consequence of this, considerable irregularity in the figures, as a whole the results were quite encouraging.

The selections were continued last year until interrupted by the early freeze, and this selected seed was planted last spring. The present has been a favorable season for the development of sorghum, but no more favorable for the earlier maturing sorts than some other recent ones. We have been examining some of these collections the past week with most gratifying results. It is not contended that this year's additional experience settles the question of the possibility of improving sorghum by seed selection, but the weight of its evidence so far is in the affirmative. A few illustrations will show the nature of these results.

The variety known as Orange and Amber cross-gave from an average sample 12.7 per cent of cane sugar in 1888; 14.8 per cent in '89; 14.6 per cent in '90; 16.5 per cent in '91. The best stalks in corresponding years contained respectively 14.2, 17.5, 16, and 18.2 per cent. The Summer of 1890 was an unusually unfavorable one, and that of 1891 an unusually favorable one. Taking these facts into consideration, the figures above certainly point to a gradual advancement. The same thing is indicated by the sugar in the product from the seed of three stalks planted separately. The product from last year's richest stalk is the richest this year. Another variety, called Medium Orange, just worked out shows a progressive development.

One would be very rash to do more than point out what these facts indicate. There may be other causes for the results than that of seed selection. The apparent improvement may prove to be apparent only. Another season may see the quality go back to its former stage or below it; and it may be that an improvement will be perceptible for some years. An improvement of four per cent in three years' growth is far more than would satisfy the most enthusiastic advocate of sorghum improvement, and is doubtless more than should be claimed.

But if a sorghum can be grown containing in its juice an average of even 15 per cent of crystallizable sugar of an average purity of 80, the profit of sugar factories will be fully assured, and the profits will not be meager, either.

Since some factories report an average mill juice for the season containing 10 per cent sugar and a purity coefficient of 60, it will be anticipated that we are yet unable with our most improved sorts to obtain a field run approaching that above. By continuing the efforts in the same line a few years more, this may be realized if we are working

in the right line. At this time we may only hope that the future will fulfill present indications, and much improved strains of sorghum result.

A WORD FROM THE STUDENT EDITORS.

With this issue of the *INDUSTRIALIST* properly begins the work of the new staff of Student Editors. We assume this responsibility under many and obvious difficulties, the most painful, possibly, being that of a dull intellect on the part of the editors themselves. So, desiring as we do, to see this acceded space properly and intelligently filled, we earnestly solicit the aid of each student who passes in and out the halls of this College. We also extend an invitation to post-graduates and former students to contribute that which may interest them and be of benefit to the readers of the *INDUSTRIALIST*.

Knowing, as we do, that the mass of the readers of this paper are not College students, and would not be specially interested with the work produced for the chapel stage, we believe subjects specially selected for their bearing on college life and its attributes would reach a larger element with greatly increased interest. We therefore request that those contributing write with the thought in view that they are writing for the *INDUSTRIALIST* and not for the chapel stage or rhetorical classes. We promise the students of lower classes that their articles will be given as careful attention as those of the advanced classes. We cannot promise that all contributions will be published. They must of necessity pass under the scrutinizing eye of one who has his being in the College, and upon whose judgment the welfare and prosperity of the College depends. Hoping that each and every one will put his shoulder to the wheel and give it a push, we are, respectfully yours,

ALICE VAIL.
G. W. WILDEN.
W. P. TUCKER.

THE WAY TO HEALTH.

When the health is fairly good and there is no special strain to be put upon the system, says *Harper's Bazar*, the normal appetite may be trusted to indicate the kind and quality of food necessary to maintain that condition. Naturally the appetite varies with the changing seasons, and unless indicates an unreasoning extreme of indulgence or abstinence no attention need be paid to any other monitor. Much harm is done by injudicious or meddlesome friends suggesting that a person is too stout or too thin, too pale or too ruddy, and serious disturbances of the system often follow the mischievous advice to take some bitters or pills, or refrain from fattening food or drink.

Paying attention to any of these fads is like playing with fire. If you are ill enough to seem to warrant any radical change of diet or any application of medicine, consult your physician at once. Above all, avoid advertised quack medicines. To use the opinion of a successful dealer in them, whose bank balance is more liberal than his conscience, they are "made to sell." If you feel a little debilitated, take the cocoa tonic; eat plenty of fresh ripe fruit and vegetables, especially oranges, and drink lemonade.

Don't be so fascinated by the allurements of the nearby village because life there seems gaudy and pleasurable, or because leisure and amusement seem to fill up the whole day, as to sell your farm, or lease it and move there, for it would be better for its business interest to be struck by a cyclone or conflagration than by an ingress of retired farmers. Nor will you be happy when compelled to go down into your pocket for everything on which you and the corporation subsist. —*Correspondent New York Tribune*.

It is perhaps cheaper to pasture the cows where land is cheap, and on large farms, but it will not pay on valuable small farms. To use five acres instead of one is to lose the use of four acres. The soiling system will at some future time revolutionize the present methods, the discovery of the preservation of green foods in the silo being the first step in that direction. —*Exchange*.

THE COST OF RUNNING TRAINS.

The average cost of running a passenger train on the railroads of the United States is eighty-three cents per mile, and the train earns just \$1.06 in doing it. The profit, therefore, is only twenty-three cents a mile, but it foots up to \$300,000,000 on all of the roads in the course of a year. The roads get two cents and two mills per passenger per mile, and it costs two cents to carry him. It is this two mills per mile, multiplied by millions, that makes the vast sum of \$300,000,000 profit. The roads get a little less than a cent for carrying a ton of freight one mile, and it costs them six-tenths of a cent to carry it. It costs more to run a freight train a mile than a passenger, the figures for the former being \$1.06, and the train earns \$1.65 per mile. —*Exchange*.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States History. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of a term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2d. Certificates of passing the grammar grade in any city school with a course of study approved by the Faculty, when properly signed by the City Superintendent.

3d. Kansas teachers' certificates issued by the County Board of Examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.			
Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Sumner,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		
CITIES.			
Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Salina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solomon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

KANSAS THRIFT.

A Dickinson county farmer has an orchard on ground that was wild prairie twelve years ago, and this year has sold part of his fruit on the trees for \$1,000.

Joseph Ramsey of this city threshed twelve acres of wheat from which he had 229 bushels. On one lot of seven acres he had 209 bushels. —*Harper Sentinel*.

The first sample of Kansas sugar tested this year at the chemical laboratory at Fort Scott came from the Medicine Lodge factory, and was found to contain 90 per cent of sucrose. This grade entitles the factory to Government bounty.

A certain farmer in this vicinity—a renter, too—has a piece of corn which cost him just twenty-eight day's labor up to the present time and today, in the field, it will bring him \$240 net cash. That means \$8.57 per day. Pretty good wages, isn't it? Farming pays. —*Clyde Argus*.

Many fields of corn are already ripened and ready for feed. The crops of sorghum, broom-corn and millet are simply immense. We know of fields of sorghum in which the seed was planted in the furrow and the sod turned over on it, in which the sorghum now stands ten feet high. —*Florence Bulletin*.

About a year ago Jesse White bought the Woodward farm, just beyond Eight Mile, paying a fair price, as land is selling now and was then. He seeded a part of the land to wheat, and the crop is worth what he paid for the farm. There are lots of just such instances, so far as the worth of the crops are concerned. —*Douglass Tribune*.

S. L. Carpenter, of Glendale township, was in town Saturday, and said he has the best crop of corn he has ever raised. He shocked out one acre, taken at random, and found he had 76½ bushels of corn. He has about two hundred bushels of peaches, a fine yield of fair wheat and largely of other crops. In addition to all this he has made this season \$236 from harvesting and other outside work. —*Salina Sun*.

W. H. Culp, who lives at 510 Quincy Street, has a growing fig tree ten years old. It is seven feet tall, and bears twice a year at least a half bushel of fruit. The fruit is now ripe, and it is difficult to conceive anything more luscious than those same Kansas figs. While not much larger than an unhulled hickory nut, they are of as fine flavor as any to be found. The tree is strong and healthy, and seems to flourish very well in Kansas soil. —*Topeka Capital*.

KINDRED INSTITUTIONS.

'The Injury to Foliage by Arsenites,' 'A Cheap Arsenite,' Combination of Arsenites with Fungicides,' are the topics discussed in Bulletin No. 77 of the North Carolina Station.

The Third Annual Report of Arkansas Station, including branch Stations at Newport and Pine Bluff, is received.

Bulletin No. 7, of Storrs School Experiment Station, Storrs, Conn., discusses chemistry and economy of food.

The Kentucky Station, Lexington, discusses commercial fertilizers in Bulletin No. 7.

The Clemson Agricultural College and Experiment Station, Fort Hill, gives analyses of commercial fertilizers in Bulletin No. 1.

Bulletin No. 17 of the Minnesota Station, St. Anthony Park, is devoted to the migratory locust in Minnesota in 1891. No. 18 of the same station discusses evergreens from seed: summer propagation of hardy plants; notes on strawberries and raspberries; notes on sand cherries, buffalo berry, and Russian mulberry.

The September report of the Statistician of the U. S. Department of Agriculture, showing condition of crops in Europe and America, together with freight rates of transportation companies, is received.

The U. S. Department of Agriculture, through its office of Experiment Stations, publishes the proceedings of the Fourth Annual Convention of Agricultural Colleges and Experiment Stations held at Champaign, Illinois, in November last. A copy can probably be had by addressing A. W. Harris, Director, Office of Experiment Stations, Department of Agriculture, Washington, D. C.

Bulletin No. 10 of the Rhode Island Experiment Station deals in "Mixed Foods in cases of Faulty Appetite in Horses and Neat Stock" and "Sore Shoulders in Horses."

Bulletin No. 6 of the American Academy of Medicine discusses the question of shortening the college curriculum as a means of better preparation for the study of medicine; an attempt to discover the ideal preparatory course of studies for the learned professions; and "The General Education of the Physician."

Bulletin No. 29 of Cornell University Station, Ithaca, New York, is devoted to cream raising by dilution; the effect of delay in setting upon the efficiency of creaming; the Babcock method of analysis of milk, skim-milk, butter-milk, and butter; and the relation of fibrin to the effectual creaming of milk.

Bulletin No. 30 of the same station discusses preliminary studies of the influence of the electric arc lamp upon greenhouse plants.

The Experiment Station Record for August contains, among other things, abstracts of station publications from twenty States.

Bulletin No. 14 of the Iowa Station, Ames, gives the effect of feed upon the quality of milk, calf feeding experiments, feeding for milk, hog feeding, notes on entomological work, breeding of orchard and garden fruits and an aphthous affection among dairy cows of the State.

Bulletin No. 79 of the North Carolina Station, Raleigh, bears the title "Facts for Farmers; A Bulletin of Information on Scientific Matters, in Plain Language, for Unscientific Readers."

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

The Webster Society has renewed its charter.

The funds of the College are all invested at this date.

Rev. E. S. Riley led in chapel exercises Thursday morning.

The College has thus early received application for aid in three farmers' institutes.

Four new show cases aid in making the museum exhibit attractive and "getatable."

Mrs. Winchip reports the number receiving daily instruction in sewing to be 112.

Mrs. Winchip is visited this week by her sister, the wife of Hon. John Otis, of Topeka.

The newspapers speak enthusiastically of the Station exhibit at the State Fair last week.

Mrs. Graham spends the week in Emporia as delegate to the Christian Missionary Convention.

Geo. Harman, of the *Farmers' Vindicator*, Valley Falls, was a visitor at the College on Monday.

Engineer Gundaker returned Thursday from Pennsylvania, where he was called by the death of his father.

For the information of the peach-hungry, it is announced by the horticulturists that the crop has all been sold.

The later varieties of grapes suffer seriously from the dry weather, the yield in many cases being reduced by one half.

Dr. Mayo is the owner of a new horse and buggy which he manages to keep in use quite regularly this fine weather.

Prof. Kellerman writes from Columbus, O., that the family are comfortably settled in their new home and like it every way.

The mechanical shops are busy every morning with over 200 wood-workers, and every afternoon with a score of wood or iron workers.

The Physics Department will have charge in future of the weather observations. The record has been kept for three years past by Assistant Chemist Breese.

Miss Bertha F. Fairchild, daughter of Prof. C. G. Fairchild, of Oberlin, arrived last Saturday, and will spend the year in the family of President Fairchild.

The yield of our new potato, the College Seedling, compares very favorably with that of the old standard varieties, while in quality it is the equal of most.

Mr. and Mrs. Matthews, of Pottawatomie county, with their daughter, visited the College on Thursday, hoping to arrange for attendance of a daughter soon.

Mrs. Mayo returned from Chicago several days since, and found, to her surprise and pleasure, that the Doctor had taken advantage of her absence to move.

Prof. Failyer is visiting western counties to inspect the sugar-beet culture, and will take in the rain-making at Goodland today, by the rain wizard, Melbourne.

The greater number of late Fall apples, such as Jonathan and Bellflower, are on the ground as a result of the recent drouth and wind. But little of the fruit will reach market.

Several members of the Faculty, by invitation of Prof. Robert Hay, attempted to greet the geologists as they passed on Tuesday in the International Geological Association Excursion just

returning from the tour through the Rockies. As the train stopped but half a minute, the interview was too brief for record.

The strawberry beds, in which there are about eighty varieties, show the effect of thorough irrigation in their fresh green color. The plants appear quite as vigorous and healthy as they did in April.

A new departure was tried in the seating for the lecture yesterday afternoon. The back three rows of students were seated in the gallery, as it is difficult to hear an ordinary talker while under the gallery.

Several homesick students, in spite of multitudinous attractions, have already sought the paternal or maternal mansion, in the hope, vigorously expressed, that they should be able to return another year to stay.

The Annual Address of the President of the American Association for the Advancement of Science has been published in pamphlet form for early distribution. In it may be found frequent quotations from Prof. Georgeson, whose study of Japanese plant life has been largely drawn upon by Pres. Goodale in the preparation of his address.

The lecture of Friday afternoon, given by Prof. Nichols, was entitled "The Growth of Mathematics." It traced the study through all the stages of calculation from a thousand years B. C. to the present; from the simplest distinction into one, two, and more, up to the indefinite possibilities of the calculus, touching upon the thinkers in all ages who have helped to build up the science.

The wheat raised on the College Farm the past year is rapidly being disposed of for seed. There is an especially large inquiry for the Zimmerman, which constituted the main crop. The College has in the neighborhood of a hundred varieties, of which seed can be obtained at about fifty cents per peck. The names of these varieties may be learned on application, either to the Farm Department, or to the Secretary of the College.

The College received, a few days ago, an extra fine imported Shropshire ram. He was imported August 18th from England by Mr. Geo. Breck, of Paw Paw, Mich. He weighs now two hundred and twenty pounds, and it is expected that by the time he reaches maturity he will weigh nearly three hundred. This ram, and two ewes purchased last year, are an excellent foundation for a fine flock of Shropshires.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 4th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1,000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

The President has appointed the following Standing Committees for the year:—

Farmers' Institutes—Professors Failyer, Popenoe, Walters, and Georgeson.

Post Graduates—Professors Popenoe, Failyer, Hood, Nichols, and Georgeson.

Library—Professors Lantz, Failyer, Popenoe, Olin, and Georgeson.

Industrialist—Professors Walters, Failyer, Thompson, and Georgeson.

Examinations and Grades—Secretary Graham, Professors Lantz, Olin, White, and Nichols.

Public Exercises—Professors Olin, Popenoe, Brown, White, and Bolton.

Social and Literary Entertainments—Mrs. Kedzie, Mrs. Winchip, Professors Brown, Hood, and Bolton.

Buildings—Professors Hood, Popenoe, Walters, Mayo, and Willard.

Catalogue, Blanks, etc.—Professors White, Lantz, Graham, Olin and Thompson.

Athletics—Professors Georgeson, Failyer, Kedzie, Mayo, and Rain.

Museum—Professors Mayo, Failyer, Popenoe, and Graham.

J. M. Smith, the Wisconsin gardener, says in the *New York Tribune*: "Gentlemen, prepare your land better, manure it better, cultivate the cultivable crops oftener and more thoroughly, and you will have much less cause to complain of drouth, and in most cases be much less disposed to go to the expense of a costly system of irrigation."

GRADUATES AND STUDENTS.

Ben Skinner, '91, is principal of the Fairview schools.

B. H. Pound, Second-year in 1889-90, is visiting relatives here.

P. C. Milner, '91, is at work in the Santa Fe offices at Topeka.

B. J. Kimball, student last year, was a caller at the College yesterday.

Geo. Browning, Third-year in 1890-91, is working at his trade as tinner in a shop at Wamego.

L. H. Dixon and N. E. Lewis, '88, have formed a partnership as architects in Boise City, Idaho.

T. C. Davis, '90, writes from Benedict, Wilson County, that he is "well, and has a pair of mules."

Phillip Hay, Second-year, has been compelled to return to his home in Junction City on account of sickness.

E. C. Thayer, '91, is taking the engineering course at the Massachusetts Institute of Technology, at Boston.

Mayme Houghton, '91, is employed on the library catalogue. Her school at Cleburne does not begin until December.

Lillian Secrest, student in 1890-91, was greeted by many Manhattan friends as she passed through on her way to San Jose, California.

Maude E. Whitney, Third-year in 1890-91, has been appointed microscopical inspector in the Government inspection of pork at Kansas City.

C. E. Freeman, '89, and W. J. and W. M. Town, Third-year and Second-year in 1890-91, were visiting with College friends the first of the week.

J. N. Bridgman, '91, G. W. Wildin and R. L. Wallis, Fourth-years, and J. D. Riddell, Third-year, are assisting Prof. Lantz with the surveying squads.

Lieut. Albert Todd, '72, with Mrs. Todd, called at the College on Friday, en route for the new fort near Chicago, Fort Sherman, where they hope to greet College friends in the next few years.

TWO NEW BULLETINS.

Bulletin No. 21, just received from the printer, is a full report of Prof. Kellerman's investigation of stinking smut of wheat, with tests of various fungicides. It concludes with the following summary:—

"The stinking smut of wheat is effectually prevented by treating the seed with water at a temperature of 131° F., 15 minutes. For cheapness as well as for greater efficiency (without injury to seed), this is recommended over all other fungicides. Not only is the yield increased by an amount equal to the portion destroyed by smut, but in nearly all cases there is an extra increase, usually much beyond this amount."

Bulletin No. 22 issued this week, gives Prof. Kellerman's investigations upon smut of oats in 1891, fungicides to prevent loose smut of wheat, and spraying to prevent wheat rust. The following general summary may help persons to judge of the importance of the bulletin:—

"The amount of smut in oats in 1891, in the fields about Manhattan, was 5¾ per cent, as shown by actual count.

"Potassium sulphide (liver of sulphur) is as effectual in preventing oat smut as the hot-water treatment previously recommended. It can be used at the rate of one pound in twenty gallons of water, the seed to remain in the solution twenty-four hours for use.

"Treatment of the seed with hot water or with potassium sulphide both prevents the smut and increases the yield. It increases the yield, however, not merely by the amount which equals the grain actually destroyed by the smut, but by at least twice that amount.

"The loose smut of wheat was considerable in 1891 in some of the plots on the College farm, in several cases being 5 to 7 per cent, and in one case 16 per cent.

"Spraying spring wheat, barley, and oats, with liver of sulphur, chloride of iron, Bordeaux mixture, and flowers of sulphur, did not prevent the red rust."

PROF. J. D. WALTERS.

We are receipt of the programme of the "City and County Superintendents' Round Table" to be held at Emporia, October 1st, 2nd, and 3rd. The afternoon of Thursday will be given to a visit to the Emporia City Schools, Friday forenoon to a "Round Table" in the Normal Building, the afternoon to another visit in the City Schools, the late afternoon to a "Round Table" presided over by Supt. C. Y. Roop of Salina, and the evening to a General "Round Table" of Superintendents, teachers, and school officers, presided over by State Superintendent Winans. Application has been made for reduced rates on all railroads and also at the hotels of the city. It is hoped that every city and county superintendent who possibly can, will be present. The educators of the State will receive a cordial welcome, and will be given every possible facility and encouragement in their noble efforts to keep the standard of intelligence and morality in Kansas schools, the beacon light of the world. Professor A. R. Taylor, President; A. R. Ludlum, McPherson; E. Stanley, Lawrence; William Reece, Emporia; Chancellor Snow, Presidents Taylor and Fairchild, and Superintendents Bloss of Topeka, Klock of Leavenworth, Boyd of Arkansas City, Minnich of Hutchinson, Stevenson of Wichita, Mallory of Junction City, and Bickerdyke of Russell county were appointed a special committee to formulate and recommend plans for representing the educational System of Kansas at Chicago in 1893. County Superintendents Stephens of Lyons, Pence of Sedgwick, Taylor of Wyandotte, Biggs of Lincoln, Superintendent Cooper of Newton and Superintendent Benton of Fort Scott were appointed a special committee to formulate and present an improved plan of district taxation. Superintendents are requested to bring printed course of study, blanks, programmes of daily recitations, monthly teachers' meetings, county associations, etc. Superintendent Greenwood of Kansas City has been invited to give a talk on penmanship and drawing. At 8 A. M., October 3rd, city superintendents will meet in special session in the Hotel Whitley parlors and the county superintendents in high school assembly rooms.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge,

COLLEGE ORGANIZATIONS.

September 28th.

The members of the Ionian Society met on Friday at the usual hour to listen to the first programme of the new year. The Society was called to order by the Treasurer and Ruth Stokes appointed Chairman. Singing, devotion, and roll-call were followed by the election of Alice Lee and Bertha Spfor as members of the Society, and the initiation of Miss Lee. The new officers were then installed. Effie Gilstrap, as President, responded to the repeated call, inaugural, by a neat little speech in which she recognized the difference between being President of the United States and President of the Ionian Society, but nevertheless held that the latter had equal privileges with the former; and asked the aid of all members in building up the Society. The programme proper was opened with a select reading, "The New Cok," by Jessie Hunter, which told of the trials of an inexperienced house keeper. Moral—Girls, learn how to cook. A violin solo by Hilda Walters was appreciated by everyone. The first number of the Oracle was presented by Laura Day, followed by a vocal solo, "Trust the boy whose motto is, 'My Mother,'" beautifully rendered by Mary Lyman. In the extemporaneous speaking, several startling facts were developed, one being that girls should not marry under thirty. The Society was again favored with music, an instrumental solo by Nora Newell, and Verta Cress closed the programme with a well-chosen declamation. Throughout the exercise a warm welcome was extended to all new students, and it is hoped that any ladies who are desirous of joining a society will visit the Ionians.

L. G. D.

September 10th.

The Webster Society was called to order by Vice-President Tucker. Roll call. B. H. Pugh led in devotion. The officers elected the preceding week were then inaugurated. Debate followed on the question, "Resolved, that there should be a property qualification to suffrage." The affirmative was opened by B. H. Pugh, in which he set the effect of the vote of the Negro, the emigrant, and the pauper. He first cites the election of Pres. Hayes as an example of an official election not being the choice of the majority of the whites. He also says three times has the choice of the American people been denied by the Negro vote, whereas if a property qualification had existed these Negroes could not have voted. The first speaker on the negative was H. Darnell, who maintained in an attractive way that if qualification laws existed to check the vote of the Negro and the foreigner, the poor laboring classes of the country who lived on only a few hundred dollars a year could not accumulate enough during that period to make them qualified to vote; and furthermore that the old soldiers being now disabled, and provided for in soldiers' homes, would not be permitted to vote on account of this property qualification. M. L. Dickson, the second speaker on the affirmative, spent most of his time in answering the arguments brought forward by the negative. A. Dickens assisted on the negative, and affirmed that a property qualification would reduce all men to the level of paupers, and that a man should not be judged by his pocket-book alone. The leaders then closed the debate with a few remarks but no new evidence was introduced. The decision of the society was in favor of the negative. Debate was followed by ten minutes recess. A song by a quartette consisting of Messrs. Tucker, Pugh, Hulett, Mattoon, was next on the programme.

As S. Little entertained the Society with a declamation entitled "Bismarck as a Heroic Character." An essay was next read by W. H. Stewart on "Our College display at the Columbia Exposition." Declamation by J. W. Williams was good. J. Frost's essay on "Have We a Purpose," was very interesting. The last on the programme was the *Reporter*, presented by F. C. Sears. The society passed to unfinished business, under which order the Treasurer and the Recording Secretary of last term submitted their respective reports, which were accepted. A motion to meet at 7:30 instead of 8 o'clock was carried. After the selection of questions, assignment of duties, report of critic, and reading of minutes, the Society adjourned.

G. K. T.

September 18th.

Our usual time of meeting found the hall well filled with Alpha Betas and visitors; Mr. Thoburn in the chair. The programme was opened by a quartet by E. J. and C. Abell and Martha and Sarah Cottrell, with Florence Fryhofer at the organ. After devotion led by Delpha Hoop, the roll was called, showing few absentees. The new officers were then installed, and President Harner took the chair after a few well chosen words as an inaugural. C. C. Smith favored the Society with a recitation "The Spires of St. Michels." An excellent essay on "The Work of the Girls of To-day," was read by Maggie Stuart. The next in order was the debate on the question, *Resolved*, That all railroads should be owned by the Government. Ivy Harner, opening the affirmative, spoke of the inequalities of railroad charters; of the unfair dealings of railroads with other corporations; of the constant change of rates caused by competition. If the Government owned the railroads there would be no competition. The Constitution gives Congress the right to regulate commerce; hence it ought to regulate the railroads, and so give equal rights to all men and special privileges to none. C. H. Thompson, arguing the negative, said he was not a politician and didn't know anything about politics. He had written to President Harrison and Postmaster General Wanamaker, but hadn't heard from them yet. If the Government owned the railroads, public lands would not be settled so rapidly, as no one would be interested in advertising them. Mr. Abell didn't write to Harrison, but thought that politics had nothing to do with the question. He thought public lands would be settled just as quickly under control of the Government, for while the railroads sell the land to the people, the Government gives it to them. Mr. Fryhofer, on the negative, spoke of the extra amount of work it would give the Government to control the railroads. It would be impossible to keep all the Government wheels in running order. Then everytime the President stepped down and out, all the railroad employees from the great Superintendents down to the last messenger boy, would have to step down and out too. Miss Harner, in closing the affirmative, thought the President would not turn out capable men. The best men would still have the best places. As it is now, the railroad men try only to advance the interests of their railroad. Mr. Thompson then closed the negative and Messrs Lyon, Thackeray, and Gardiner decided unanimously in favor of the affirmative. G. L. Clothier read a very interesting edition of the *Gleaner*. Among other excellent articles were, "Notes on P. M.," "Autumn Leaves," "Chronicles," and "Patches." After recess, Sarah Cottrell entertained the Society with an organ solo. Miss Clark then gave the news of the week, followed by informal speeches by Misses Cottrell and Edwards and Mr. Gardiner. After the usual routine of business, followed by congregational singing, the Society adjourned. To all

September 19th.

With Vice-President C. P. Harsh in the chair, the Hamilton Society was called to order at 7:30 sharp. Thirty members responded to the roll call. C. R. Hutchings led in devotion. Officers were then inaugurated. R. T. Fish, C. V. Holsinger, and P. Law became fellow Hamiltonians. The programme of the evening was taken up. The question, "Resolved, That the present political conditions show signs of decay in the Republic" was argued on the affirmative by W. J. Yeoman. He said: While the question confines us to the present, we will glance at the past to get the trend of political affairs. During Monroe's administration the Republic enjoyed a greater degree of peace, satisfaction, and prosperity than at any other period of its existence. There were no political factions, no strife. Now it's all faction and strife. The great underlying bone of contention is labor and capital. The condition of our farmer and laborer is similar to that of the same classes in the old countries—ours get half prices for their produce, theirs day heavy rents. The combines on produce prevent the natural course of supply and demand to the detriment of the producer—shows a lack of proper legislation. Reciprocity is a greater benefit to the capitalist than to the farmer. New political organizations that keep rising indicate general dissatisfaction. Farmers have been oppressed until they are too radical in their Alliance reforms. If capitalists had not the advantage they would howl about their rights. Hon. J. W. Ady, in his address to the people of Manhattan, advised no changes or new laws, and in the old way tried to explain away the ills of the people as imaginary. Whenever the strong is allowed the advantage of the weak, then there is evidence that the laws have not been adjusted with equity. The strongest indication of the decline of the Republic is the feeble way in which the laws are enforced. I. B. Parker, the first speaker on the negative, replied: A government is an organization of people whose object is to provide for the protection and promote the welfare of all. Is not the United States the best government on the globe? Because the Farmers' Alliance wants so many changes is no sign of decay in the Republic. Party rivalry is essential in any country to prosperity. One party picks out flaws and defects in the other which causes reform and improvement in the government. In the old country wages are only about one third what they are in this—this surely doesn't point to decay. Our laws are obeyed better than those in any other country. We find trusts in all countries grinding down the people. Not only capitalists oppress the poor in foreign countries, but the governments do also. I suppose the political parties are corrupt, but since parties are composed of voters it is themselves that cause the corruption, and men as corrupt in one country as in another. What the majority want the minority must succumb to. There was progress instead of decay when we made the Negro's rights equal to the white man's. Wm. Joss continued the affirmative by stating that what the people want is protection. The government is too corrupt to make good laws. Why are new parties being continually organized? Something is certainly wrong. Corporations and combines are actually robbing the producer—illustrating with the picture of a cow that is fed in the West and milked in the East. Mr. Hogbin carried on the negative argument. The farmers are paying off their mortgages faster than ever before. If the farmer is coming into power he will legislate for himself, and this doesn't indicate decay in the Republic. W. J. Yeoman and I. B. Parker closed their sides of the debate by making a recapitulation of the arguments. The judges, Messrs. Smith, Simmons, and Wickman, decided unanimously in favor of the affirmative. C. E. Yeoman entertained the Society with his novel musical machine, the "melo harmo-boxi-netta." C. R. Hutchings held the attention of the Society discussing "In the Line of Our Navy," speaking of the improvement of the navy and the power of some of the largest guns. R. L. Wallis read "A Cat Story" which proved to be very amusing. After spending several minutes in an animated discussion of parliamentary tactics, the society adjourned. W. J. Y.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

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LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable footwear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75."

THE INDUSTRIALIST.

VOLUME

MANHATTAN, KANSAS, SATURDAY, OCTOBER 10, 1891.

NUMBER 7.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

GLANDERS.

BY DR. N. S. MAYO.

THIS peculiar and fatal disease of horses is important, not only on account of its fatality, but also from the fact that it can be transmitted to man by inoculation, through some other lower animals. Cattle and hogs, for some unknown reason, do not acquire the disease. Glanders belongs to that large class of diseases which are caused by bacteria, or "germs," the "germ" of glanders being named *bacillus molleii*. Glanders differs from some germ diseases in that it can be contracted only by contact with a diseased animal, or substance that has been in contact with a diseased animal. The bacteria do not float in air.

One of the most common symptoms, and one that would be noticed by an ordinary observer, is a discharge from one nostril, more often the left nostril, or from both, of a sticky substance of a greenish or rather dark color, often streaked with blood. Sometimes this discharge has a very fetid odor, but this is only in the later stages of the disease. The mucous membrane of the nostril, instead of being of a healthy rose color, assumes a dull leaden hue, and as the disease progresses becomes covered with ragged-edged ulcers. The glands situated between the lower jaws enlarge and become hard and tense, though they rarely break through and discharge.

There is another disease, or, rather, glanders in a different form, called farcy, or "button" farcy. In farcy, the "germs," instead of attacking the mucous membrane of the nostril, attack the lymphatic glands situated in, and just beneath, the skin. These glands swell and form what are commonly called "buds," which usually break after a time and discharge an amber-colored sticky fluid at first, but later a yellow pus. Any one or all of the legs, or any other part of the body, may be the seat of these farcy "buds." If one leg is affected, it usually swells and presents the appearance of a "big leg."

Horseowners and others are usually, and justly so, very much afraid of glanders, but of farcy they often think lightly, and may hire some "quack" with a "sure cure" for farcy to heal the animal. It is now a settled fact that glanders and farcy are but different forms of the same disease. Inoculations from glanders may produce either glanders or farcy, and farcy often develops into glanders; that is, both diseases are caused by the *bacillus molleii*. If this attacks the mucous membrane of the nostril, the horse has glanders; if it attacks the lymphatic glands of the legs or body, the horse has farcy.

In the first stages of the disease, the animal may appear in excellent health, but later on, especially if worked and not well fed, it becomes greatly emaciated, has a rough, staring coat, and presents a dejected appearance generally. Sometimes, however, an animal may work for several years when badly diseased.

Any horse may contract the disease by contact with a diseased horse, or by contact with a post or manger or any drinking vessel which has previously been in contact with a diseased horse.

Wherever a glandered horse goes he is sowing the germs of the disease; for the discharge from the nostrils or from farcy ulcers contains large quantities of "germs," and they are scattered in places where other horses are likely to come in contact with them.

Both diseases are practically incurable. Though the ulcers of farcy may be healed up for a time, the germs are still in the system ready to break out on the least provocation.

Any person having a horse which he suspects to have either glanders or farcy, should isolate the animal and have it examined by a qualified veter-

inarian; for by keeping a glandered horse he not only runs the risk of inoculating his other horses, but those of his neighbor as well. And any person coming in contact with a diseased horse is liable to contract this loathsome and incurable disease.

DAINTY, BUT SENSIBLE.

BY RUTH T. STOKES, '92.

WHAT a delightful person one is who can be both dainty and sensible. There is the dainty woman who seems to be for the purpose of being beautiful and attractive by her dainty dress and polished manners. Such is the typical French woman attired in her faultless costume and high-heeled shoes, or the heroine of some pleasing story. They are real band-box specimens, who look pretty, act pretty, and talk pretty; but of practical life and useful labor, they know nothing. Then there is the strictly sensible woman, who sees only the stern realities of life. To her, the world is a place of work, rather than pleasure. She is a good housekeeper, and keeps everything scrupulously neat. She understands the art of cooking; but puts things on the table in a generous, wholesale way as though her only object was that people should have enough to eat. The one with a delicate appetite would probably be alarmed at the thick slices of bread and large pieces of meat. She does not think of arranging things in the most delicate and appetizing way. It was bread and meat, just the same, and one way of serving was just as good as another,—so she thought.

The dainty sensible woman is the happy combination of the two. She not only knows how to work, but makes her work a pleasure rather than a drudgery. She can even wash dishes and clean lamp chimneys as daintily and with as much care as though she were arranging a bouquet of flowers. Everything of a refined and delicate nature is a source of great delight to her, though she is not forgetful of the most common comforts of life. Her tea table is a real picture in itself: she knows how to prepare and arrange each dish in the most appetizing and attractive way; burnt potatoes and soggy bread are articles which never find their way to her table. In whatever work she does, she leaves the impress of refinement and delicacy.

With more sensible dainty women, work would cease to be a drudgery, and happiness would be found in every household.

HIGH EXPLOSIVES.

BY LIEUT. E. B. BOLTON.

IN order to give a conception of high explosives to those who do not understand chemical affinity, it is best to commence with the explosive in common use. From about the middle of the thirteenth century—1234 A. D.—till 1860, a period of over 600 years, the only explosive used in fire arms and the peaceful arts was a mixture of charcoal, saltpetre, and sulphur,—commonly called gunpowder—which, when ignited, evolves an immense volume of gas in an exceedingly short period of time, and expands with an enormous force. The more gas evolved in a given space, the greater is the expansive force; and the less time consumed in evolving that amount, the more powerful is the explosive force. It is the immense force which can be suddenly generated at the will of man that renders gunpowder valuable. The sportsman recognizes this when he uses it to send shot into the body of game. The warrior uses it to send bullets into the bodies of his antagonists, and destruction to the property of his enemies. The miner uses it to rend asunder the walled casings which enclose the precious and other ores. The quarryman uses it to break the

slabs of large stones into convenient pieces for handling. The engineer uses it to blast tunnels through mountains of rock. The farmer uses it to blow up stumps and remove other obstacles to the working of agricultural machinery in his fields. The firemen use it to blow up houses which cannot be saved from advancing flames, and thus prevent their spread to adjacent houses. And many other are the uses for which this invaluable agent has been called into play, all of which depend upon the sudden development of its immense force which can be controlled by means of the ingenious devices of man.

Although gunpowder has been in use all these years, it has been recognized for a long time that all of the ingredients used in the mixture are not converted, when exploded, into that gas whose expansion is the desired force—as for instance, if 100 pounds of gunpowder are exploded, while the 100 pounds of ingredients combine with each other, there are actually only about 32 pounds of things to make gas, 68 pounds going to make compounds of a different nature which are detrimental, rather than serviceable, after being formed. They are called the residuum. They foul the bore of the gun and detract from the expansive force of the gases. Could ingredients have been discovered, which, when mixed and ignited, would all go into useful gas, instead of leaving a solid residue, the explosion would be far more powerful.

Gunpowder is a mixture of three ingredients, and although it seems to flash all away at once, it really does not do so; but takes time for its burning up. Its action is progressive; that is, one layer of the grains on its outside surface, like the peelings of an onion, will burn and make gas, then the next, and the next, and so on, till finally the one grain at the center of the bulk burns to make gas. While this act of burning is progressive as to time, it decreases in the successive volumes of gas evolved. This method is said to be exploding on a decreasing surface; that is, the outer surface contains more grains of powder than the next layer, and therefore makes more gas than the next layer; and the next layer makes more gas than the next, and so on to the centre, whose volume is one grain, and cannot possibly generate more gas than the outside surface.

To evade this, powder for small arms was made coarser grained, in order to permit the flame to flash through the crevices and ignite every grain at the same instant. Cannon powder is made something like the cylinder of a revolver, with holes running through the center, so as to permit the flame to start on the interior and burn from the centre on an increasing surface outwards. This is called exploding on an increasing surface. No mixtures could be found which would explode all together in one instant—one single flash—or have all of the substance converted into useful gases when ignited.

About 1846 it was discovered that if common cotton was put into a mixture of nitric acid and oil of vitriol, the acids would act on the cotton in a manner to change its properties without changing its appearance. This cotton would then explode, and for that reason was called gun-cotton. When it exploded there was a tremendous, violent explosion, because it all exploded at once; there were no progressive stages of burning, and nearly every bit of it went into expansive gases. Its action proved to be too violent for useful purposes, because the amount of gas developed was so large, and the time in which it was developed so inconceivably small, that it acted like a shock, which shattered everything confining it. This was a high explosive; but it was not practical for use—indeed it was exceedingly dangerous to be handled in large quantities.

About 1860 further developments were discovered in the manner of treating gun-cotton, ena-

bling it to be handled with more safety. About the same time, also, it was discovered that if pure glycerine be treated with those same acids, an oily liquid of a very highly explosive character would be generated, which was called nitro-glycerine. This liquid was dangerous to handle except when frozen. It was soon found, however, that if mixed with some solid powder, which would absorb the liquid, it could be handled more safely. This was called dynamite.

It was then discovered that by dissolving ten parts of gun-cotton in ninety parts of nitro-glycerine, the mixture gelatinized, and was called explosive gelatine. Experiments of various kinds have been going on in the past few years, and various substances of a highly explosive nature discovered by mixing or combining, in various manners, different ingredients with gun-cotton and nitro-glycerine, among which may be mentioned roborite, melinite, bellite, emmensite, securite, helhoffite, lithofracture, rackarock, etc., etc.

Experiments are being confined of late years to discovering substances such as when mixed with these explosives will produce gases that are colorless. These have received the name of smokeless powders. Success has been attained, and smokeless powder is a reality; but time alone will tell what smokeless powder will be the most desirable.

NOTE ON INJURY DONE TO THE POTATO CROP BY THE WHITE ANT.

(*Termes flavipes*, Kollar.)

(Order Platyptera, Family Termitidae.)

BY F. A. MARLATT, ASSISTANT ENTOMOLOGIST.

IN this locality, for several years, we have received complaints from farmers and others, who claimed that the "white grub" had injured or destroyed a portion of their potato crop. The injury was most noticeable in rich fields where there was a quantity of decaying vegetable matter. The tubers had the appearance of being more or less scarred or pitted to the depth of from one eighth to one fourth of an inch. These pits are of varying shapes, from irregular holes to long, irregular excavations, sometimes extending far into the potato. In all cases these pits are more or less covered by the dead and decaying skin; and are also lined with the dead, woody tissue of the potato, showing that the insect cared little for any other than the starch and water of the tuber.

While harvesting the potatoes from the experiment plats this fall, Assistant Mason brought in some tubers which had been injured in the same manner as those described above. In two of these the white ant was found to be still at work, making new pits and enlarging old ones.

Upon an examination of the harvested crop, ten per cent was found to show marks of the work of these insects.

The field from which the potatoes were dug is full of dead and decaying apple roots; the trees having been grubbed out in the winter of 1889-90. These old, decaying roots make excellent locations for the white ant's nest, which is always far below the surface of the soil, the ants never coming into the sunlight of themselves. From these nests galleries are dug to great distances over the field.

The work of the white grub, the larva of *Lachnosterna fusca*, was also found on a few of the potatoes; but this is very easily distinguished from the work of the white ant by a larger scar, being a hemispherical cavity, the edges of which, although irregular, are free from dead and decaying skin, while the cavity is not lined with the comminuted woody material, as are the pits made by the white ant.

The only satisfactory way to rid the field of these pests is to find and destroy the central nest with its contents. This can be best accomplished by a liberal application of hot water, after the nest has been sufficiently opened to allow the water to enter. The use of carbon bisulphide has also been recommended, but I would caution those who use it not to bring it near a fire, as it is very volatile and explosive.

REQUISITES OF A FARMER.

BY G. L. CLOTHIER, '92.

THE modern American farmer does not need the skill and practice in handling the hoe and spade that his brother in China or in Japan usually exhibits. He should not make a beast of burden of himself; but should be capable of directing horsepower, together with the forces of nature, in such a manner as to accomplish the greatest possible amount of work with the least expenditure of his own muscular strength. In fact, to be a successful farmer, a person must be a machinist, carpenter, blacksmith, civil engineer, and laborer combined.

There is more intricate machinery in a self-binder than in a locomotive, and the farmer who can handle one so as to accomplish all that it is capable of doing must be a genius. The use of steam power for grinding, threshing, and feed-cutting has made it so that a knowledge of the steam engine is indispensable to the successful farmer. He must not only know how to run such machinery himself, but he must be capable of finding out intuitively whether his hired help has this knowledge or not. The great variety of planters, drills, seeders, harrows, pulverizers, plows, cultivators, mowers, rakes, self-binders, feed-cutters, and traction engines must be studied, and the excellencies and defects of each pointed out. He must know enough about mechanics to discover the line of least traction for a plow or a loaded wagon.

And does our American farmer know all of this? I answer, that when successful, he does. The tendency among so-called educated people is to think that the farmer is an inferior person, and that he does not know how to use his means to accomplish certain ends to the best advantage. The educated man only shows his own ignorance of the conditions to be overcome on a farm when he thus sneers at the modern methods of farming. There is not a class of people in the world who accomplish more than the average American farmers do today; and this is done against untold disadvantages that the tradesman in the shop never thinks about. The properly educated farmer is not one who can plan the most disagreeable and irksome tasks for his hired men, but one who employs a man for the brains he possesses rather than his muscular strength. Farming requires intelligence and skill in many lines of work, and the young man who contemplates making agriculture his chosen profession would do well to remember that he must be a specialist in more than one direction if he would succeed.

KANSAS THRIFT.

Pittsburg has 42 coal shafts, six zinc smelters, and one silver smelter.

A company to operate a barge line at Kansas City, Kan., has been chartered.

It is proposed to turn out 1,000,000 pounds of sorghum sugar at Medicine Lodge this fall. The Government bounty on that amount would be \$20,000.

The establishment of a linen factory in this city is a near event. A company with a capital of \$50,000 will be organized, and the buildings of the Union stove foundry will be remodeled for the purpose.—*Leavenworth Standard*.

The Central Branch road is doing a rushing business. Usually about three trains follow each other in the evenings over that road heavily loaded with products from the western counties of the State. Judging from this, Western Kansas must be an immense producing area.

Commissioner Mohrman of Peoria township is no slouch of a farmer. His wheat averaged 30 bushels to the acre, machine measure; oats 41 bushels, machine measure, or 49 by weight. His timothy made 10 bushels to the acre. His corn will average proportionately well.—*Ottawa Republican*.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Pres. Fairchild spent the afternoon of Wednesday in Topeka.

Colds were prevalent during the early part of the week, owing to the cold wave.

Prof. Failyer spends the day in Kansas City to witness the closing scenes of the fair.

The Military Department will soon gain by exchange a hundred new belts and buckles.

The quarterly meeting of the Board of Regents will be on Tuesday, October 20th, at 3 P. M.

Assistant Chemist Breese visits Chase County this week in the interest of the beet-sugar experiments.

The College Library is under obligations to the author for a copy of Biglow's Principles of Strategy, just received.

Prof. Nichols spends his spare time in rewinding the dynamo that it may be in readiness for electrical experiments.

The annual meeting of the Kansas Academy of Science at Ottawa, next week, will attract several members of the Faculty.

The sorghum sugar experiments conducted by the Chemical Department are cut somewhat short by the sharp frosts of this week.

Secretary and Mrs. Graham are taking time to see the Kansas City Exposition, having gone by the early Friday morning train.

Prof. Hood hopes to occupy his cosy new office in the iron shop next week. His present office will be used as a store-room.

Wooden pulleys will be used exclusively in the iron shops, they being lighter, more convenient, cheaper than iron, and fully as durable.

Bulletin No. 24, the first from the Veterinary Department, is in the hands of the printer. It deals with Staggers, or Cerebritis, in Horses.

Miss Mary E. Francis, a relative of the President, is spending a few weeks here on the return from an extended journey east to her home in Oakland, California.

Prof. and Mrs. Georgeson went Thursday to Kansas City to see the fair. Prof. Georgeson attends the sale of Jersey cattle, hoping to add another good cow to the College herd.

About a hundred chrysanthemums in the gardens met their fate on Tuesday night at the hands of Jack Frost. Fifty odd, having been taken into the greenhouse, were saved for fall blooming.

Twenty-six volumes of the Edinburgh Review have just been received from the State Printer, completing the set. There have also been received the first eighty-one volumes of Blackwood's Magazine.

E. M. Fairchild, studying in Andover Seminary, while using a small chisel accidentally gave himself a blow resulting in the entire loss of his left eye. The skill of the surgeon insures a speedy return to his studies without serious interference with progress in study, or with his life-work.

The College Y. M. C. A. met in special session Tuesday evening to greet the new State Secretary, Mr. Wilbur, of College Y. M. C. A's. An earnest request was made that our association send delegates to take part in the exercises of the State Convention to be held at Parsons, Kansas, from October 21st to 25th.

Bulletin No. 23 goes into the mail this week. It deals with "Smuts of Sorghum" and "Corn Smut," and was prepared by Prof. Kellerman before his departure. The following summary concludes the bulletin.

"Two different smuts affect sorghum grain smut (*Ustilago Sorghi*), infesting the individual

grains, and head smut (*Ustilago Reithiana*), converting the whole panicle, or head of sorghum, into a large, black mass, covered in the earlier stages with a white membrane.

"The smuts so far as heretofore reported attack only those varieties raised from foreign seed, or seed recently imported. They have not been very abundant as yet in Kansas. The head smut was first reported in this country in 1891, though known for several years previous in Europe and Africa.

"A preliminary test in the greenhouse, in the winter of 1890-91, showed that it was possible to infect the plants by infecting the seeds with the spores of the smut.

"Treating the infected seed with three fungicides, namely, liver of sulphur, chloride of iron, and hot water, did not result in decisive evidence as to the actual value of the fungicides.

"Attempts, both in the greenhouse and in the field, to infect maize by adding a quantity of the spores of corn smut to the seed were unsuccessful.

"Spraying corn with Bordeaux mixture, with chloride of iron, and with potassium sulphide solution did not prove efficient in the attempted prevention of the corn smut."

A new organization has been effected in the Battalion of Cadets. Previous to this the organization has been Regimental. As now organized, it is that of a Battalion, and the following is a list of the officers and their respective duties:—

STAFF AND FIELD OFFICERS.

G. W. Wildin, Major Commanding Battalion.
F. S. Little, 1st Lieutenant and Battalion Adjutant.

J. W. Hartley, 1st Lieutenant and Battalion Quartermaster.

C. Abbott, Sergeant Major.

W. H. Stewart, Sergeant and Color Bearer.

COMPANY.

Company "A"—Captain, J. L. McDowell; 1st Lieutenant, W. H. Edelblute; 2nd Lieutenant, J. E. Thackrey.

Company "B"—Captain, R. L. Wallis; 1st Lieutenant, J. Frost; 2nd Lieutenant, D. H. Otis.

Company "C"—Captain, C. P. Hartley; 1st Lieutenant, W. S. Pope; 2nd Lieutenant, A. D. Rice.

GRADUATES AND STUDENTS.

Dora Thompson, Second-year in 1890-91, is visiting with College friends.

A. A. Gist, '91, returned on Monday to Bellville after a short visit at home.

F. E. Way, Second-year in 1889-90, reports success as principal of schools at Wayne, Republic County.

J. S. Lamm, Second-year student, is called to his home in Lansing today by the death of his grandmother.

Prof. F. W. Hiddleston, who attended College in 1874-5, is teaching in the Milton Academy at Milton, Oregon.

E. W. Reed, Fourth-year student, visits Topeka today to inspect the workings of the sorghum sugar manufactory.

K. C. Davis, '91, has resigned his position as teacher in the Indian School at Hoyt, Jackson County, and entered the State Normal School for a special course.

Funeral services over the remains of A. L. Whaley, whose death from heart failure at Pasco, Washington, was announced in these columns last week, were held on Wednesday afternoon in the Presbyterian Church.

Abbie L. Marlatt, '88, Professor of Domestic Economy in the Utah Agricultural College, writes of successfully serving lunch to the 250 members of the Irrigation Congress, from Salt Lake City, on September 19th, having only four hours in which to prepare the same.

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Scientific Club.—President, I. D. Graham; Secretary, Bertha Bachellor. Meets on the fourth Friday evening of each month in Chemical Laboratory.

Y. M. C. A.—President, G. L. Melton; Vice-President, J. L. McDowell; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society.—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society.—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society.—President, A. D. Rice; Vice-President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, I. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society.—President, J. N. Harner; Vice-President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsman, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

October 2nd.

President Harner called the Alpha Beta society to order, and the programme opened with organ and violin duet by Callie Conwell and Geo. Fryhofer. Mr. Hulse led in devotion. Messrs. Mercer, C. E. Abell, F. H. and C. M. Morgan, and Misses Elva and Inez Palmer were initiated. W. C. Mead gave a recitation, "Studies." Martha Cottrell's essay on "Curiosity" was interesting, and showed careful preparation. The question "Resolved, That industrial training should be compulsory in the common schools," was discussed by Onie Hulet and Hugo Halstead on the affirmative, and Elizabeth Edwards and C. C. Smith on the negative. The judges, Louise Daly, Maud Gardner, and Jessie Stearns, decided two to one in favor of the affirmative. C. H. Thompson presented the Gleaner. "An Open Letter," "Stories of Professor Man and Student Boy," "Who, Which, What, Where, When, and Why," and "A Prairie Fire," were among its entertaining articles this week. After recess the society was entertained with a quartet "Auld Lang Syne," by Messrs. Clothier, Fryhofer, E. J. and C. E. Abell. Sarah Cottrell presented the news of the week.

October 2nd.

The usual time of meeting found Ionian Hall well filled with both members and visitors. President Gilstrap called the society to order. After singing and devotion, the roll was called, showing that there were very few members who were absent. The number of members of the Ionian family was then increased by two—Miss Cress and Miss Winters. Ora Mills was also initiated as the new member of the board of directors. The programme was opened by Blanch Hayes with a select reading, "The first Settlers story." Following this was another reading by Emma Adams, entitled "An Ideal of Women." The society was then entertained with music, which in a ladies' society, might be considered rather novel, but which nevertheless was highly appreciated by everyone. It was a trombone and alto duet, rendered by the Misses Haulenbeck and assisted by Ione Dewey at the organ. Hortensia Harman presented the third number of the Oracle. The motto selected was—"Do with thy might what thy hands find to do."

In her editorial she traced the Oracle to the ancient Grecian times, and gave an interesting account of its origin, from a historical standpoint. One of the most interesting subjects treated was, "An Evening on the Farm." After the reading of the paper, Harriet Dodson opened a discussion on the subject, "Should girls know how to care for a horse?" Miss Dodson thought that it would be advisable for every girl to know how to manage a horse, for then it would not be necessary for her to depend on others for the pleasure which would be derived from driving. Quite a lively discussion followed. Some thought that in gaining this knowledge, the companionship, which is one of the chief pleasures of riding or driving, would in a measure, be forfeited. But it seemed to be the opinion of the majority that the girl should know how to care for the horse. Alta Lee then favored the society with a vocal solo, "Afloat." Lizzie Meyers, as news girl, had gathered many interesting bits of news both from this country and from abroad. The programme was closed with a solo by Alice Horton. After discussing several society matters, and listening to the critic's report, the society adjourned.

L. G. D.

October 3rd.

The Webster Society room was well filled considering the stormy weather, and at 7:30 the bugle of President Tucker called the assembly to order. Roll call, followed with prayer by B. H. Pugh. Five new members were elected. Messrs. Paul, Royer, Munger, Holmes and H. G. Tope. This makes over sixty members on the Webster roll. After the initiation of F. Dow the society listened to the debate. The question was, "Resolved, That trusts and combinations will yet prove a positive advantage to American civilization." L. S. Harner opened the debate with definition of a trust, and then began to elaborate upon the question. First he says that we now have trusts, and they are still forming, seem to be prospering, and will probably exist as long as the world stands, because they are necessary to civilization. They can produce cheaper, keep prices lower, and produce an amount equal to the demand, and no more; that over production is impossible under the present form of trusts. He refers to the Standard Oil Company as a trust that has proved a benefit to the country; producing the oil as cheap as it is possible. Again, trusts do not make the price on an article beyond a reasonable amount for if they do others will compete and reduce the price. E. W. Reed, the first speaker on the negative, sees but one advantage that would result from trusts, that is, the bringing together of different branches of trade under one management, but this is not done. He shows by statistics that the oil company referred to can produce oil fifty per cent cheaper than it could before the trust was formed, but the price has been reduced only twenty five per cent. Such organizations as these cause the centralization of capital, which is dangerous to any country. Already one half the wealth of the United States is controlled by 25,000 people. Distribution of capital is what we want instead. Trusts monopolize the trade, and make and control the prices, thus preventing competition, which is the life of trade. But few millionaires can be pointed to who are not interested in trusts. The more trusts are formed the more capital is centralized. E. A. Clark, aiding the affirmative, told in a brief way some of the advantages of trusts. He cited something within our own observation—the boarding clubs of the city, in which the members have organized trusts, thus benefiting themselves. In the absence of C. F. Pearson, R. C. Harner assisted the negative. He said that trusts cannot be a positive advantage to civilization, as they totally shut out small enterprises by reducing the price of certain articles; or if in the case of railroads, reducing the price of transportation for a short time until the individual or smaller organizations have lost all the trade. They can well afford to reduce prices at certain times and places if by so doing they can freeze out smaller firms and then afterwards fix the price. More over, when a body is so organized as to prevent competition, it is considered a crime. Rocketteller, one of the leaders of the Standard Oil Company, has made his entire fortune of millions of dollars by being interested in trusts. This again shows that these trusts are the centers of wealth, and are of good to only those who have invested. After a summing up of the points by the leaders, the debate was closed. The Society decided the question in favor of the negative. A motion for ten minutes recess was carried, after which G. K. Thompson rendered a declamation. An instrumental solo was dexterously performed by J. M. Williams. W. Brown then read an essay on "Artesian Wells." The Reporter was presented by F. S. Little. Some of the topics treated were "The Appropriation," "Stock-breeding," "Let Us Be Cheerful," and "A Reform in the Agricultural College." An excellent article from a Cousin Ionian was very much appreciated by the Society. Following the Reporter was a discussion by R. C. Harner on "The Expenditures of the United States." After the usual business, and a little drill in parliamentary law, the Society adjourned.

G. K. T.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Atchison schools report a daily average attendance of 1,700 pupils.

The High School of Salina has 141 pupils, a small gain over last year. The total enrollment of the different schools is 1218.

J. E. Dewey of Abilene, President of the Kansas Academy of Literature, has taken the place of Rev. E. P. Chittenden, on the board of editors of *The Agora*.

The High School of Lawrence has 63 Seniors, 123 Middles, 143 Juniors, and 20 unclassified students. The tuition for last year was \$2,000; this year the amount will reach \$3,000.

The Board of Directors of the State Teachers' Association is busy in its preparation of the programme for the annual State Institute. The programme will contain some new features.

Every school room in the county should be provided with a wash-basin, soap, towel, comb, and looking glass, and all the pupils should be required to keep their hands and faces clean and hair neatly combed.—*Russell Signal*.

A reception was held at the Salina High School Assembly room Friday evening. It was given in honor of the new teachers. The features of the occasion were a calisthenic drill, by Misses Ellis of Topeka, and speeches by T. D. Fitzpatrick, Profs. Roop and Woodrow, and Miss Dooley.

The Board of Directors of the State Teachers' Association have made an arrangement by which the ladies' quartette of Clay Centre is to furnish music for the meetings of the Association during the entire session. The quartette enjoys the reputation of being one of the finest musical organizations in Kansas.

Kansas stands second to no other State in the facilities for the education of her youth, and yet Massachusetts has free public libraries in 248 of 351 towns and cities within her borders. Kansas people will buy their own private libraries if they cannot get access to those of a public nature and can then appreciate them.—*Exchange*.

Prof. M. D. Bailey of the State Normal School has been very unfortunate. He has been working fourteen years on an arithmetic and had every detail worked out thoroughly in the manuscript which he sent to a New York publishing firm to print. A few days since he received word from the firm that the copy had been lost. As he did not retain a copy of the work, it is irretrievably lost.

University extension has made a good start in Kansas City. A society has been organized here in behalf of the movement, composed largely of college graduates and of members who are heartily in sympathy with the work and who will give it their active support. The Missouri and Kansas universities, not to speak of other established institutions of learning in the two States, will furnish an able corps of lecturers, and everything appears to favor a successful prosecution of this means of higher education in Kansas City. The system has been tested elsewhere with the most satisfactory results, and that is a sufficient warrant that it will not fail here.—*Kansas City Star*.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After

each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

THE RISE IN KANSAS LAND.

It is stated that every acre of desirable land in Kansas has advanced in value 25 per cent during the past twelve months. There has been a quiet but steady increase in the demand for farms in that State, and it is not possible now to pick up the bargains anywhere which were so plentiful a year ago. The big crops have added a new value to the soil, and have caused it to be eagerly sought for. Hundreds and thousands of land owners in that State who would have parted with their holdings two years ago for little or nothing could not be induced to give them up now even for a tempting sum of money.

It is not the bountiful season alone which is responsible for this change. The farmers are beginning to realize that land has a value far in excess of that which many of them have attached to it. They know that it is not becoming any more plentiful, while the demand for the products which it yields must of necessity steadily increase. The earth will not grow any bigger, but its population will continue to expand, and the call for food will be rapidly enlarged. That is a self-evident proposition, which must be apparent to the most ordinary intelligence.

Senator Plumb, who was never accused of being visionary, makes the bold prophecy that every acre of good corn land in this country which is within reach of a market will be worth \$100 by the year 1900. He asserts that he ventured this prediction several years ago, and he does not want C. Wood Davis and Erastus Winan to steal his thunder. Mr. Plumb does not look upon the prognostications of either of these writers as being chimerical, and he quite agrees with the ideas which they entertain regarding the future prosperity of the farmer. That this belief in the preciousness of land is becoming general, is evidenced in the eagerness with which that class of property is being sought. The land market is firmer now than it has been for some years, and while there has been an active advance in prices, there is every reason to expect a continued rise.

It has been demonstrated to a mathematical certainty that the power of absorption of food products has finally caught up to the power of production—that the possible ratio of increase in consumption is greater than the immediate possible ratio of increase in the growth of food. These premises, which seem to be well established by the ablest economic writers, admit of only one conclusion, and that is a very decided appreciation in the value of land. The conditions which have stimulated inquiry for farms in Kansas and have advanced their price are not temporary. They are permanent, and their influence will become more distinctly apparent as the disproportion between the production of food and its consumption increases.

Kansas, therefore, will not only realize this year a vast amount of money in hand from the sale of her crops, but her wealth will be enormously augmented by the increased value of her lands. This movement has not resumed the form of a boom. It is attended by no excitement, but all the same the person who starts in search of a desirable farm in Kansas will find that it cannot be had for a song, and that lands which went begging two years ago are now held at a stiff good figure. The big crops of this year have called attention to the earning capacity of the soil in Kansas in a very conspicuous manner and, while the yield this season was somewhat phenomenal, the average of production in Kansas, taking it year in and year out, is equal to that in any other State.

The present activity is what might have been expected after the long season of dullness, which

had a tendency to make people insensible to the real value of land, which always has a fixed intrinsic worth. The awakening came with the bountiful harvest and the great foreign demand for cereals which sent up prices, and Kansas is enjoying in a peculiar manner; the benefits of the change because of its wonderful agricultural advantages. It is realizing this year the good fortune which it deserves, and by a sudden but substantial secretion of land values it is richer today by many millions of dollars than it was twenty-four or even twelve months ago.—*Kansas City Star*.

HOW TO OIL A HARNESS.

Take the harness to a room where you can unbuckle it and separate the parts completely. Wash each part well in lukewarm water, to which has been added a little potash. Scrub well with brush until the grease and dust have been removed. Work the pieces well under the hand until they become supple. It won't do to oil until it becomes so.

Let the parts dry in a place where they will do so slowly. When just moist, oil.

For this purpose use cod-liver oil. It is the best for the purpose.

Besides, if you were to use neat's foot, the rats and mice are your enemies at once, while they will not touch a harness oiled with cod-liver.

Give a good dose of oil to all parts, then hang where the harness will dry slowly.—*Exchange*.

THE REVISED COURSE OF STUDY.

FIRST YEAR.

- Fall Term:* Algebra, English Analysis, Geometrical Drawing, Industrial.
- Winter Term:* Algebra, English Composition, Book-keeping, Free-hand Drawing three times a week, Industrial.
- Spring Term:* Algebra, English Structure, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

- Fall Term:* Geometry, Elementary Chemistry, Horticulture, Industrial.
- Winter Term:* Geometry completed, Projection Drawing, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).
- Spring Term:* Anatomy and Physiology, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

- Fall Term:* Trigonometry and Surveying, Agricultural Chemistry, General History, Industrial (Farm and Garden).
- Winter Term:* Mechanics, Constitutional History and Civil Government, Rhetoric, Industrial.
- Spring Term:* Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week; Drafting two hours, Industrial.

FOURTH YEAR.

- Fall Term:* Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.
- Winter Term:* Logic, Deductive and Inductive, Zoology, Structural Botany, Veterinary Science or Floriculture, Industrial.
- Spring Term:* Geology, Political Economy, An elective in Agriculture, Horticulture, Mechanics, or related sciences, Industrial.

MANHATTAN ADVERTISEMENTS.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

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LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dongola shoes, \$2.00.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—“75.”

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 17, 1891.

NUMBER 8.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

By the PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STAFF.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director.

ENGLISH IN THE COMMON SCHOOL.

BY PROF. JAMES W. RAIN.

IN the common school the pupil studies grammar. Why? To know that a noun is the name of anything? To learn a lot of rules that he can say forwards or backwards or up side down? That will do him no good; absolutely none. He is wasting his time and letting his brain grow stiff with disuse. The old grammars proposed to teach us how to speak correctly. They would better say how to speak directly, to the point, in a clear, strong, truthful way. There would be no reason why we should speak correctly, if it did not include all these.

We do not study anything to get knowledge only. It is far more important that we gain power. There is work for us in the world, and what we need is the ability to do it the best way. The man who can fix his attention, and control his own actions, feelings, and circumstances, is master of himself and of others. All education should lead towards the full development of manliness and womanliness, and the study of English must be no exception. Through it, we should learn to be simple and systematic in working, and to be logical and straightforward in reasoning.

To gain this end, several things are needful. The teacher must have a mastery of good English, both language and literature; "knowing grammar" is not enough. Grammar, the form of words, is a dead corpse unless it is the covering and expression of living, burning thought. The pupil's business is to learn to think, and he who can think truly is an educated man, no matter if he never saw a school. The teacher should train his pupils to have, not merely a knowledge of pure English, but the habitual use of it. The English tongue is a wonderful instrument—keener than the sharpest sword, it cuts through the network of a flimsy argument; stronger than the giant's battle-axe, it thunders at the door of wrong; clearer than the brightest sunbeam, it reveals the simple truth; more delicate than a fairy's wand, it touches our heartstrings, and they echo a smile or a tear. He who can wield this mighty weapon will be a master of men, and in learning to use it he will become master of his surroundings.

Above all things, the pupils should be kept from mechanical, sleepy-headed work, from blind repetition, imitation, and memorizing. Teach them to think. How many of your pupils ever had a thought of their own, the original product of their own brains? Implant there a thought-germ, and help it to grow. Let them think simply, in words which express exactly what they mean—no more, no less. To do this, they must think thoroughly. A vague, indefinite scrap of a thought can never be clear. Too often they "know but can't quite tell" because they have gotten hold of just one end of a thought. The rest is misty, and they cannot fully grasp it until they think it through.

Observation is very necessary to the study of language, and is too often sadly lacking in the grammar class. A pupil will notice at once that a horse is lame, or that a bundle is loosely and carelessly tied, but in a sentence or paragraph, he is helpless and dumbfounded, simply because his powers of observing have never been trained to work in that direction. He sees in language—words, nothing more. It is to him an arbitrary collection of verbs and adjectives and nouns—as interesting as a collection of geological specimens. He may indeed learn the names of them if he keeps at it long enough, but what they mean, or that they mean anything—such an idea does not occur to him. Teachers sometimes despair about this, and feel that grammar is so dry, vague, and

artificial that the best we can do is to make the pupils swallow it with their eyes shut, faintly hoping that when they get older they may understand and appreciate its meaning. If they do understand it when they are older, it is because they think it through; because their own brains look for the reasons, and find them. With the help of an intelligent teacher, there is nothing to prevent them doing this in school where it ought to be done. English grammar need not be a scarecrow or a bugbear. It is largely what we make it.

But the acquiring of English does not lie altogether with the teacher. It depends, in great measure, upon the effort each one makes for himself and by himself. He who does all that the teacher asks, will doubtless do well, but he who does a little more than is required, gains the power of self-instruction. Some very simple and direct means to this end may be mentioned, as they are within the reach of everybody:—

1. Reading. This does not signify a hasty glance at the newspaper, or a dip into an occasional book. It means making a business of reading for fifteen or twenty minutes every day. Of course, read carefully. Ask yourself, not merely "What does the author say in these words?" but "What did he intend to say?" "Could he have made known his idea in better words, more direct and simple?" "Has he said all he meant to say?" and "What have I learned from this?"

2. Writing. At some quiet and regular time, take pen and paper, and write down one thought that occurs to you,—not a mere mention of it, but a full statement, clear and plain.

3. Use the dictionary. Consult it for the spelling of every strange word, but even more carefully look up their meanings. Those who have a dictionary at hand perhaps do this; but there is one thing often slighted which, as a condition of mental growth, is of the most importance. There are many words with which we are somewhat familiar, but whose meanings we cannot tell with any exactness; these should be looked up and fixed in memory by use. Always find the right word, and use it. And the right word is the one which truly expresses the thought.

"BORROWING MONEY."

BY PRES. FAIRCHILD.

FROM the fact that money forms the basis of calculation for all notes and mortgages, people often assume that these certificates of indebtedness actually represent an equal amount of lawful money passed from lender to borrower. This is by no means true. Most notes represent debts for other property than money, and there is little relation between the quantity of notes and of currency in the ordinary loans of a country.

When A borrows a farm of B with the expectation of returning the farm itself at the end of five years, he pays rent for its use, and returns the farm in as good condition as when he received it. But when he takes the farm with the hope of improving it, he promises only to return, at the end of five years, an equivalent in value to what he received, and his contract takes the form of a note, with interest instead of rent for its use, and dollars instead of acres, to estimate the debt. His note is said to mean borrowed money, but it actually means a borrowed farm. The same is true of all notes given at purchase of houses, stock, goods, machinery, clothing, provisions, etc. We actually borrow currency only when we cannot find a person able and willing to lend us the farm or other article we wish to use; and then it serves simply to transfer property from one who is unable or unwilling to lend to the one who is able and willing.

The result is exactly the same as if the lender of currency had bought the farm and lent it, only the borrower is agent for the purchaser. Indeed, the great bulk of so-called borrowed money involves no money at all, except in the terms of the note.

In the final settlement of these debts, currency may be used or not, according to circumstances. If my creditor needs the stock and grain I have accumulated, he takes that at market price in dollars, and my debt is cancelled. If he does not need it, I find some man who does, and by means of currency or note make his need satisfy my creditor. Again, the debtor gives his commodity to the creditor by means of a third party interested only in meeting his own wants.

The fact is that borrowing and lending pertains to every kind of commodity, and currency serves in this respect, as every where else, to transfer property and claims. A scarcity of money usually means simply that few people have property of any kind to lend, while the would-be borrowers are many, and gives no indication of the amount of currency in use. A single rumor may change from plenty to scarcity by making owners of any property afraid to loan. A single year of prosperity may make the lenders plenty and the borrowers few, because all have surplus wealth. Borrowed money means simply borrowed wealth, measured in of terms currency, but not in currency.

MENTAL RECREATION.

BY ARTHUR D. RICE, '92.

TO those engaged in sedentary pursuits, and especially to the student, the question of recreation is one of great importance. The one who studies the mere text-books hour after hour and day after day without taking recreation will break down physically and mentally. Hence, physical exercise is necessary to the preservation of bodily health. "But how may I preserve mental health? When my mind is so tired that the will no longer fixes the attention, and the thoughts wander hither and thither, how shall I rest?" is a question asked by every student, and every student will answer according to his temperament and experience. But whatever method of recreation is advocated, whether it be athletic sports, the study of general literature or of the sciences, the substance of every answer will be that the mind cannot rest without work. In fact, the philosophy of rest may be summed up in the word "work," or rather in the phrase "change of work." This may be a seeming paradox; but let us see. The mind is composed of various faculties, only a few of which are employed at a time. For instance, in the study of mathematics certain powers of the mind are exercised; the study of history employs still other faculties; and so it is in the acquiring of knowledge in all its different branches. Hence, while one set of faculties are at work, the other powers of the mind are comparatively idle, and if seldom or never employed will become weak and useless. Consequently, the hours of recreation should be devoted, not only to the resting of the hitherto employed faculties, but also to the building of those which have been unemployed.

Gladstone is a good example of one who knows how to use his leisure hours. For forty years he has been the most active of English statesmen; but amidst the turmoil of politics and the labor attending his leadership of the Liberal party, he has found the time to study and write much on the poetry of Homer, and on theology. Now the study of Homer brought into play different faculties from those employed in the solving of State problems, and the study of theology employed still other powers of his mind. Thus Gladstone has had two sources of rest from his severe labors as a statesman, and no doubt he owes his great mental vigor in his advanced age to thus employing his hours of recreation. Bancroft, the great

historian, turned aside from his literary work, and in his leisure hours found mental rest in the cultivation of roses. Not long since I read of a young man, a clerk in an office, who in five years had acquired a good knowledge of general literature, and also of French and German, simply by studying one hour a day. So examples might be found without limit.

But however we may view the examples afforded us by the experience of other men, we should depend largely upon our individual judgments and tastes, keeping in mind however, that the strengthening of those faculties, during the hours of recreation, which have been comparatively idle during the hours of labor is as important to the mental health as the resting of the fatigued faculties. If a person persistently follows such a course of mental recreation he will become broader minded, and will be in no danger of being called a "man of one idea." He will grow in sympathy and love for humanity. The dark side of life will become of a lighter shade, and the pleasant things of life will be more enjoyable.

THE MODEL GIRL.

BY EFFIE GILSTRAP, '92.

THE model girl! None of us know her, I fear, for she is a rare product in this generation, when most of its women are engaged in living through evils inherited from preceding ones; but we think, we hope, she will prevail in the 20th century, when our daughters and granddaughters are growing up, worthy examples of the reform accomplished in the 19th century.

It was Talmage who said that a child's education should begin with its grandmother. Our model girl at least needs an inheritance of sound mind and strong body as a foundation upon which to build. But if she come into the world only moderately well endowed and free from greivous hereditary taint, her future welfare may almost be ensured; provided she follows the laws of life and health as to body, mind, and morals.

We will suppose that our model girl has reached the age of eighteen. During her babyhood and childhood her mother has guarded and planned for her daily existence. She has always worn easy clothing and shoes, particularly during the period of growth, that no part should be impeded in its development. She has been taught from infancy regular habits, has always slept in a well ventilated room, and has had regular exercise in the open air. Her time for sleep has also been arranged. In winter, she goes to bed at ten and rises at seven; in summer, she retires and rises at earlier hours. She has been taught the importance of caring strictly for her health, and impressed with the fact that it is not her own welfare only that she is guarding, but the health and happiness of many others. The dress of the model girl is a happy combination of the hygienic and the beautiful. Her hours for study and amusement are systematically arranged. If she is a student, she does as much of her work as possible in the daytime, and she never tries to work when ill or nervous—though the model girl is seldom conscious of headaches or nerves. She refuses absolutely to be imposed upon by being persuaded to do extra work while she is in school or regularly employed elsewhere, when such work would interfere with her hygienic duties. This model girl is honest—thoroughly honest—in her dress, her accomplishments, her class work, and the more trivial affairs of life, and she is the more respected for her refusal to do any mean thing than if she regarded the wishes of the weak and unscrupulous.

The model girl is such a thorough lady that she does not entertain false notions of modesty, nor does she fear to know truths about herself; she is open to information and correction. She does not chew gum or use slang. She does not make fun of

the aged or deformed, and uses moderation in all her amusements. She has made a study of household science, chemistry, nursing, and sanitary laws, and if she had not time for these and the ornaments too, she dropped the latter from her curriculum, rather than crowd out the essentials.

And yet, my model girl is not prim, stiff, unlovely, or old maidish; she is simply a sweet, innocent, healthy, sensible girl, holding in her life the surety of a beautiful fulfillment of the promise of

"A perfect woman, nobly planned,
To warn, to comfort, and command."

CLEANLINESS ON THE FARM.

BY F. C. SEARS, '92.

IF it is true that cleanliness is next to godliness,—and we have good authority for believing that it is,—does not cleanliness about the farm deserve more attention than it commonly receives?

There is often as much difference in the appearance of two adjoining farms as in that of their owners; and the farm is capable of as much improvement by the judicious use of the mowing machine and the scythe as is the man by the use of soap and water. Indeed, a man may often be as truly judged by the appearance of his farm as by the company he keeps.

Take the simple matter of mowing the weeds along the road. How much more pleasant it seems to drive along a clean road than it does when both its sides are lined by sunflowers, while a worn-out and dilapidated row in the middle of the road disputes the passage of the horses and drags discordantly along the underside of the wagon-bed.

A little time employed in setting the tool house to rights, or a few moments spent in picking up the odds and ends of boards that are sure to accumulate on any place, will add ten times the value of the time spent, simply in the pleasure it gives one to see things look neat.

We often see the question "How to keep boys on the farm," discussed in newspapers and magazines. Usually the method advised is, "Make the home attractive." I would add as an important supplement to this, Make the farm attractive. I know that boys are not, as a rule, the most orderly beings in the world, yet there few boys who do not appreciate the difference between an orderly, well-kept place and the opposite. True they may not be able to tell just what this difference is, but they realize it, nevertheless.

The man who allows his pigs to investigate his garden at their pleasure; whose front yard is adorned by a calf or two browsing on the festive sand-bur, and sheltered from the sun by a patch of sunflowers; the wires on his pasture fence being so loose that his cows walk serenely into his neighbor's corn-field, must not complain if the boys go through the fence also.

Let each farmer spend a few days each year in clearing up the place and putting things in order, and life will seem more pleasant to all concerned. Try it.

The cry for better roads is being taken up throughout the country, and those States which made good highways years ago are now reaping the benefit in a big advance in real estate values. It is bound to come to this country—if not now, then later on—but why not now? Why wait for years, wearing yourselves and your teams out on such roads as we have here in the winter and spring? A good system of macadam should be adopted, all road taxes paid in money, and a competent road builder employed and have a road made good and lasting as far as the means would permit. How soon it would be that we would have splendid highways throughout the county. Let Allen county make the start.—*Humboldt Union.*

The *American Agriculturist*, in an exhaustive study of the world's food supply, finds a deficit of 200,000,000 bushels of wheat and rye. Europe, during the past month, has taken half as much wheat from the United States as she took during the first eight months last year.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Mrs. Popenoe is visiting in Topeka.

Board meeting on Tuesday next at 3 P. M.

Dr. Milner, of Manhattan, led in chapel services on Friday.

Regent Hessin has been out of the State for more than a week past, but returned yesterday.

Mr. and Mrs. G. L. Bayles of Kansas City are visiting with brothers and sisters who are attending College.

The Webster and the Hamilton Societies hold no session this evening on account of the political meeting in town.

The mid-term examinations come on Friday, October 23d, and all classes are reviewing in preparation for the ordeal.

Assistant Breese returned sick from Chase County, and was unable to attend to College duties on Monday and Tuesday.

Mr. Marsh of Morris County visited the College on Thursday in the company of Mr. Strong, hoping soon to bring his family to Manhattan.

Mr. McKeen, of Russell, has moved into Prof. Lee's house on the Hill to give his daughter the privileges of the College for a few years.

The carpenters are at work removing a part of the west wall in the Secretary's office to make a place for new postoffice boxes and window.

Mr. Fryhofer, grandfather of two of our students, was a visitor at the College on Thursday with Mr. Winkler, a friend from a distance.

Another set of planes have been received from the Gage Tool Company of Vineland, N. J., to be awarded as a prize to the best beginner in wood-work.

The special classes in Domestic Science have a pleasing array of canned fruits, pickles, and preserves, the results of their handicraft in the past four weeks.

Prof. and Mrs. White took possession of their new house on Wednesday of this week. It is a beauty outside and in, doing credit to both planners and builders.

It is hoped soon to make provision for athletic exercises for the young women, who are at present forced to content themselves with such plebeian gymnastics as sweeping, bed-making, etc.

The Committee on Athletics have recommended, and the recommendation has been adopted, that tennis, baseball, and "sich" be not played on the College grounds during recitation hours.

The College herd is enriched this week by the addition of two Jersey cows of Cattle Club record, and excellent individual merit. They were purchased by Prof. Georgeson at the sale of the Murphy herd in Kansas City.

The sharp frosts warn us that summer is over, and that autumn in all its glory of variegated foliage will soon be upon us. In Kansas, the fall-time is the most pleasant season, the warm, bright sunshine and smooth roads enticing the veriest recluse from his haunts to take a spin through the country lanes.

The second division of the Third-year Class appeared in chapel yesterday with declamations: E. M. S. Curtis, "A Tribute to Grant;" Ione Dewey, "A Tribute to Penn;" Albert Dickens, "A Symbol;" Ivy F. Harner, "The Memory of our Honored Dead;" C. L. Gall, "Culture in the School-room;" Maud M. Gardiner, "The Crisis in Life;" R. C. Harner, "Our Country's Wealth."

The first division of the Fourth-year Class appeared in Chapel Friday afternoon of last week with orations. The speakers and their topics fol-

low: E. R. Burtis, "Development of Australia;" G. L. Clothier, "Advantages of Free-trade;" Elizabeth Edwards, "Genuineness of Character;" S. C. Criner, "Capital Punishment;" H. Darnell, "Our College Advantages;" W. H. Edelblute, "Kansas Then and Now."

GRADUATES AND STUDENTS.

Fred Kimball, '87, has returned from Garden Grove, California.

Ada Rice, Second-year in 1890-1, is visiting old classmates and friends at College.

Inez Moore, student of last year, was visiting friends at the College on Friday.

S. I. Wilkin, Third-year, is back in school this week, after an absence of two years.

G. J. VanZile, '90, orders his paper sent to Carthage, Illinois, the home of his parents.

J. M. Garrett, First-year, was called to Lawrence one day last week as witness in court.

Bell Selby, '82, has finished her art and music studies in New York, and will arrive in Manhattan soon.

B. R. Elliot, '87, is spending a few days with his parents. He returns next week to Nederland, Colorado.

S. C. McAdams, Third-year in 1890-91, is employed in the Rock Island Railway offices at Rock Island, Ill.

Phillip Hay, Second-year, who was sick for two weeks at his home in Junction City, returned on Monday to classes.

W. E. Whaley, '86, left on Thursday for Chicago, where he will spend a year in the Law Department of Northwestern University.

W. S. Hoyt, Third-year in 1886-7, came in from Colorado Springs this week. He officiated as groomsman at the Elliott-Knostman nuptials.

M. A. Carleton, '87, spent a few days with College friends the first of the week. He plans to teach this year in Southwestern University, Wichita.

J. E. Thackrey, Fourth-year in 1889-90, who has been teaching in the Indian Territory since leaving College, is at present working at carpentry in St. George.

Mattie Reed, Third-year in 1885-6, sends word from Pomona, California, that the fruits and flowers are incomparable; but she misses the Kansas sturdiness of character.

G. V. Johnson, '91, after being sick of mountain fever for five weeks at Springer, New Mexico, returns to Kansas to gain a lower latitude. His postoffice is Cedar Vale.

F. B. Elliot, '87, and Eva M. Knostman, Second-year in 1887-88, were married, Thursday evening, October 15th, at the residence of the bride's parents in Manhattan.

G. A. Browning, Third-year in 1890-91, suffers from a crippled hand received in "due course of business" at the tinner's trade in Wamego, which unfits him for work for a week or two.

Lillie Bridgman, '86, writes from the California State University at Berkeley, where she has begun a three years' course in Literature and Languages, that she is the first young lady who has begun the course for degree of Ph.D. at that place.

Rev. E. L. Thorpe, of Hartford, Conn., with Mrs. Thorpe, visited the College yesterday. Mr. Thorpe was a student of this College from 1872 to 1875, and "bached" with Prof. Failyer in those days of struggle on College Hill. Reminiscences of those heroic days of old, and earnest exhortation to the students to make most of their life, not for self, but for higher things, entertained the assembly in chapel.

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

COLLEGE ORGANIZATIONS.

October 10th.
The Hamilton Society, being called to order, was led in prayer by C. E. Boardman, Carl Snyder, R. D. Fay, C. H. Johnson, H. P. Carnahan, F. G. Trazzkowsky, C. Louis, W. H. Painter, and C. Gall were initiated. C. E. Boardman delivered a declamation entitled "An Appeal to the Alliance." An essay by A. Jackson was entitled "Silver and its production." Select reading by O. E. Otten, subject, "Troubles of a Bridal Party." The news was presented by W. O. Stayer. The Recorder was read by W. J. Yeoman. After recess, extemporaneous speaking was indulged in on the subject "College Dances." E. D. Fay, J. Riddell, G. W. Wildin, and C. P. Hartley expressed their views. After the regular business was finished, the Society adjourned.
W. S. P.

October 10th.
President Tucker called the Webster Society to order at 7:30 Saturday evening, the hall being filled with members and visitors. S. I. Wilkin led in devotion. Debate on the question, "Resolved, That the United States should close her ports to foreign immigration," was the first exercise on the programme. The affirmative was presented by F. Sears and J. M. Williams, and refuted by M. W. McCrear and W. H. Stewart. By a vote of the Society it was decided that the negative did not answer the argument brought forth by the affirmative. Declamations were delivered by B. H. Pugh and J. W. Evans. D. H. Otis, in an essay, told how the public were being swindled by the use of adulterated foods. Guitar music was furnished by W. H. Mattoon and Ed Platt. A. Dickens read an essay on "Broom Corn Raisins in Kansas." P. H. Padgett discussed the proposition, "Can we make rain?" E. M. S. Curtis presented the news of the week, after which the society adjourned.
M. F. H.
Secy. pro tem.

October 9th.
The usual time of meeting found a goodly number of Alpha Betas and visitors assembled in the society, with President Harner in the chair. The programme opened with music—a quartet by Misses Martha and Sarah Cottrell and Inez and Elva Palmer. Mr. Thoburn led in devotion. After roll-call, Miss Rose Francis was elected and initiated as a member of the Society. Miss May Secrest's oration on "Our current Literature," was well delivered, and very interesting. Mr. Christenson gave a reading—"Longevity." The next in order was debate on the question, "Resolved, That the influence of the times is toward the national unification of the world." It was argued on the affirmative by Miss Stearns and Mr. Clark, and on the negative by Misses Gardiner and Secrest. The judges—Messrs. Thompson, Lyon, and Thackrey—decided in favor of the negative. Mr. Fryhofer then presented the Gleaner with the motto, "A stiller in time saves nine." After recess Miss Clark presented the news. Among other items, she mentioned the wedding of Mrs. Frank Leslie, the arrest of moon-shiners in West Virginia, the death of Mr. Parnell, and the suicide of General Boulanger. Under miscellaneous business, several names were proposed for membership. After assignment of duties, report of Critic and reading of minutes, the programme was closed with a violin-flute duet rendered by Messrs. E. J. and C. E. Abell.

October 9th.
At the usual time of meeting, President Gilstrap called the Ionian Society to order. After singing and participating in the devotional exercises, the roll was called, showing quite an increase since the first of the term. Marie Blachley was elected and initiated into the Society. The programme opened with a vocal duet by Rena Helder and Ione Dewey, "Beautiful Moonlight," to which all listened with pleasure.

A very amusing selection, "The Down Hill Road," was read by Phil Crump. Lillian Oldham followed with an essay, and Daisy Day recited.

Marie Haulenbeck, as editor of the Oracle, presented a very bright and interesting number. Her motto was: "For the advancement of civilization and the cause of education everywhere." Several of the articles were instructive as well as entertaining, one of these being an article on Robert Ingersoll.

Alta Lee entertained the society with a guitar solo, which was encored. Miss Lee responding "The debate on the question, 'Resolved, That the Friday lectures are instructive and entertaining,' was opened on the affirmative by Alice Vail. She thought that by means of these lectures a great variety of facts would be gained by the students, many of which would never be learned in any other way; that the knowledge thus gained is not limited to any particular subject, but embraces a poetry, science, geography, and even a knowledge of human nature; that the chief reason we do not profit is because we do not pay attention. In some cases it is impossible to profit because the hearers cannot comprehend the subject. Under such circumstances it is good discipline for the mind. The negative was first argued by Edith McDowell. Her argument was that the majority of the students cannot hear the speaker, and then when Friday afternoon comes, the student is tired and does not care to listen. Thought it would be an improvement to have the lectures in the evening because there would be a larger number of out siders attracted by them and the Professors would vie with each other in the preparation of them. Mabel Selby further argued the importance of the lecture by comparing an absence from chapel, counting four zeros, with an absence from the classroom, counting only one. Rena Helder continued the negative. Miss Vail in closing the affirmative asked if our exhibitions are more interesting because held in the evening. Miss McDowell closed the negative. The decision of the judges was two to one in favor of the affirmative. Euseia Mudge reported the news of the week, and Mary Lyman closed the programme with a vocal solo. After listening to the report of committees and transacting some business affairs, the society adjourned to meet October 16 at 2:30 P. M.
L. E. D.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The Alpha Beta, open to both sexes, and the Ionian, for ladies, meet Friday afternoon. The Webster and the Hamilton admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Northwestern Kansas Teachers' Association will meet in Belleville, November 26th to 28th.

There are ten colored students at the State University this year. "His soul goes marching on."

Two former University students are driving wagons for Wallace's circus. "A little learning is a dangerous thing."

The Troy *Chief* has a first class editorial department edited by the county superintendent, Miss Francis E. Katner.

The Kansas Academy of Science met this week at Ottawa. The attendance was fair. A short report will be given in next number.

Clay Center has added about two hundred dollars' worth of books to the public school library. Among the acquisitions is a complete set of the original American edition of the *Cyclopedia Britannica*.

Supt. A. S. Olin, of Kansas City, Kansas, has gone to Worcester, Mass., to study psychology under G. Stanley Hall a few months. Mr. Olin will also study the school systems of eastern cities from personal observation. The Superintendent is a brother of Prof. O. E. Olin, of the Kansas State Agricultural College.

Asked recently concerning the reports in certain Kansas newspapers that he had "gone over since coming to Nebraska bag and baggage to the Alliance party, and had adopted their most ultra ideas," Chancellor Canfield said: "I am working about eighteen hours a day trying to assure the gentlemen who placed me at the head of the University that they have not made a mistake. But I am willing to say this: I have neither written or spoken a line or word to any person or persons that can even be construed to have the remotest reference, direct or indirect, to any political party or platform or cause, or to my relations past, present, or prospective, to any party or cause, since taking up my residence in this State."—*Nebraska State Journal*.

CARE OF LAMPS.

Lamps are necessary in every family, and upon the condition in which they are kept depends much of the comfort of the household. A writer in the *American Agriculturist* says: After several years' experience in giving light to the family, it struck me that a few hints upon this subject might be acceptable to others. If there is only one servant to assist as maid-of-all-work, the kerosene lamps will suffer for want of proper and intelligent care. New lamps do very well, and if filled daily, the light will be satisfactory for some time. Unfortunately, lamps, like other household conveniences, feel the effects of time and constant use. The brass burners become encrusted with oil, which has burnt black; the little perforations, so important for just the right circulation of air, are filled with dust and the lamps begin to give a dim light and to smell very unpleasantly. The first idea always is, that the oil is not so good as formerly; but a little observation will disclose where the trouble is, namely, in the burners alone. Now the best way to obviate this trouble is to take all the burners off your lamps, and, after removing the wicks, put the burners on the stove to boil. A little ammonia in the water will accelerate the process of cleaning. After the burners have been thoroughly boiled, a slight rubbing with a flannel cloth and sapolio will restore all their pristine brightness, and your lamp will no longer annoy you with a bad odor or a dim light. The care of lamps is quite an item in the daily routine, but if they are systematically attended to it takes much less time in the long run. Fill the lamps early in the morning and wipe them carefully, first with a damp cloth and then with a soft, dry one. The burnt portion of the wicks should be pinched off with a bit of cloth, and only occasionally should they be trimmed with scissors to keep them perfectly even. That most satisfactory of all lights, the Rochester reading lamp, must have the burner boiled occasionally—once in six months is often enough. Many people use brushes or paper to clean lamp-chimneys, but nothing is so satisfactory to me as washing them in good hot soap-suds and wiping them, at once, with a linen cloth. A good light is an absolute necessity, and nothing gives a room a more uncomfortable, forlorn look than a sputtering, dim, ill-smelling kerosene lamp. Candles are pretty and fashion-

able, but are altogether too much trouble for ordinary use, for it takes longer to clean a candlestick than it does to put a kerosene lamp in order, and if not perfectly clean, a candlestick is far from ornamental.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

TO THE PARENTS OF STUDENTS.

I feel moved to preach a sermon to parents whose sons and daughters are away at school or college. Possibly I may be permitted to adopt a very imperative and negative form of address. Don't worry that your child is working too hard; don't fear that he lacks money; don't think that the board at the club is not nourishing enough; \$3 a week buys very good board in many college towns; don't send him or her a box of goodies before Christmas; don't sympathize too much in his homesickness; don't fret yourself in the miserable thought that it is too bad for him to be away among strangers—it is best for him, best for you; don't go to see him too often—leave him alone; don't feel too badly because you are not so necessary to your child as once you were—it is nature for a child to grow, sometimes to outgrow the parents; don't boast about your child's honors; don't be sorry if you are poor and he must work his way through college; don't be too penurious with him; don't be too profuse with him, if you are rich; don't forget that once you were a girl, a boy; and, therefore, lastly don't cease to be hopeful for your daughter, for your son.—*The Advance*.

KEEP ECONOMICAL COWS.

The cow for economy is the one that from a quantity of feed will produce the most and best milk or butter. This cow will not be any larger than it necessary to do her work and she will not store up a lot of fat that will be of no particular use to her owner. She will eat much more feed than a wasteful cow, but here one point showing her true economy comes in; while she eats more feed she gives a larger per cent in return than the wasteful cow, and if we take a herd of economical cows and compare it with a large herd of wasteful ones we will only have to furnish the food of support for the smaller herd while we get as much milk or butter as the large herd gives. The difference between keeping a herd of economical cows and a wasteful herd may be the difference between profit and loss; it certainly will be a difference of a wide margin in the profits. The best is the cheapest, whether it be cows, feed or care, and the economical cow is the best cow no matter what her breed may be or whether she is

of any breed; for dairy work alone we must look to the individuality of each cow.—*Stockman and Farmer*.

An object of interest at the Columbian Fair in 1893 will be an enormous microscope which is now being constructed in Munich. It will magnify 11,000 diameters, and the instrument will cost nearly \$10,000. For the purpose of illuminating the images, which will be projected upon a screen, an electric light of 11,000 candle power will be used. As the great heat from so powerful a light would derange the focus by expanding the metal, it has been necessary to devise a way for cooling it. This has been accomplished by connecting with the microscope a small copper cylinder, filled with liquid carbonic acid and arranged in a way to let a drop fall automatically at regular intervals in the form of spray. This evaporates and produces intense cold.—*The Congregationalist*.

Gathering seed corn is now the most important and pressing work upon the farmers of Kansas. Select the earliest and well-filled ears, dry thoroughly in the sun before storing away, and then store it where it will keep dry. Gather plenty of it in order that you may be able to sell a supply to some neighbor next spring who neglects this important duty on the farm.—*Exchange*.

If a farmer cannot get fifty times its subscription price out of any good agricultural paper in a year it is his own fault, for it is there, and all he needs to do is to utilize the suggestions and methods spread out before him.—*New England Farmer*.

THE REVISED COURSE OF STUDY.

FIRST YEAR.

- Fall Term:* Algebra, English Analysis, Geometrical Drawing, Industrial.
- Winter Term:* Algebra, English Composition, Book-keeping, Free-hand Drawing three times a week, Industrial.
- Spring Term:* Algebra, English Structure, Botany, Industrial (Carpentry or Sewing).

SECOND YEAR.

- Fall Term:* Geometry, Elementary Chemistry, Horticulture, Industrial.
- Winter Term:* Geometry completed, Projection Drawing, Agriculture or Household Economy, Organic Chemistry and Mineralogy, Twelve Lectures in Military Science, Industrial (Cooking).
- Spring Term:* Anatomy and Physiology, Entomology, Analytical Chemistry, Twenty Lectures in Military Science, Industrial (Farm and Garden or Dairy).

THIRD YEAR.

- Fall Term:* Trigonometry and Surveying, Agricultural Chemistry, General History, Industrial (Farm and Garden).
- Winter Term:* Mechanics, Constitutional History and Civil Government, Rhetoric, Industrial.
- Spring Term:* Civil Engineering or Hygiene, Physics, English Literature, Perspective Drawing two hours a week; Drafting two hours, Industrial.

FOURTH YEAR.

- Fall Term:* Agriculture or Literature, Physics and Meteorology, Psychology, Industrial.
- Winter Term:* Logic, Deductive and Inductive, Zoology, Structural Botany, Veterinary Science or Floriculture, Industrial.
- Spring Term:* Geology, Political Economy, An elective in Agriculture, Horticulture, Mechanics, or related sciences, Industrial.

MANHATTAN ADVERTISEMENTS.

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FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

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LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dongola shoes, \$2.00.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. Our collection of Spectacles in gold, silver, and steel cannot be beat. Don't forget our ten-cent bargain counter. Everything at lowest living prices.—"75."

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 24, 1891.

NUMBER 9.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Director

I—THE INDUSTRIES AND THE INDUSTRIAL CLASSES.

BY PROF. FRANCIS H. WHITE.

IT is my intention in this and succeeding articles to trace in outline the development of the industries and the changes that have taken place in the condition of the industrial classes. Of course it will be impracticable, in the small space at my disposal, to present the mass of data on which the conclusions and generalizations are based; nothing more can be done than to give now and then a representative fact and to cite the authorities from which others may be obtained. Two things may be accomplished by these papers: First, by separating the conclusions from the great body of facts on which they rest, clearer answers may be given to the query, "whither?"—in other words, tendencies may be revealed that will be helpful in our thought of the future. Second, as no effort will be made to exhaust the subject, it is hoped that some of the readers will secure the books referred to, and for themselves trace out the developments more fully.

THE PREHISTORIC PERIOD.

Students are frequently disappointed when commencing the study of general history to find scarcely any mention of the early condition of man. Introduced at once to the marvelous works of Egypt, and shortly afterwards to the still higher life of the Greeks, they have little by which to measure the various improvements in civilization, and so fail to realize adequately the long, rough road up which humanity has struggled. Failure to grasp thoroughly the beginning of things is fatal to the understanding and appreciation of the later stages.

Anthropologists divide the time, since man's first appearance on this earth, into three parts—the Stone Age, the Age of Bronze, and the Age of Iron, according as one or the other of these materials was customarily used in the construction of the implements that have come down to us. The information concerning man in the Paleolithic, or Old Stone age, is very meagre, but sufficient is known to enable us to see him dimly in the far-distant past contending against fearful odds, but coming out at last victorious. How mighty were the rivers, how dark and extensive the forests, how rank and luxuriant the vegetation, how powerful and fierce the wild beasts that surrounded him! When nature was the most formidable, man was the weakest. Notice the insignificance of his weapons of defense measured by our modern ones. It is difficult to understand how man with his stone axe, his cudgel of wood, and flint-tipped arrows, could have held his own against such fearful creatures as the mastodon and others equally as dangerous. But "the battle is not always to the strong," and so man, with his superior ingenuity and skill, continued to exist.

Fear and want, however, must have been his constant attendants. Think how little he understood of the phenomena of nature, how imperfectly he was acquainted even with himself. There was indeed sufficient in his environment to justify fear, but we may be sure that imagination increased all real dangers a hundred-fold, and added some that had no existence except in his own mind. We are inclined, with Tylor, to attribute much of the terror, the superstitions, and some otherwise inexplicable customs of early man to the fact that he failed to make a distinction between his subjective and objective impressions. Fear and physical need are not pleasant companions, but more than once in the history of our race they have been the reasons for unusual exertions that have pushed mankind to a higher level.

The tendency toward a closer and closer "di-

vision of labor" which is so apparent in our own times has its origin in this long-gone age. It probably commenced in the family—the wife doing the work best suited to her strength and circumstances. At first, the occupation of all the able-bodied men was hunting and fishing, but after awhile those who showed themselves more skillful than others in making their rude flint weapons and tools would naturally spend more of their time in such work, and the hunters would be willing to give them game or other desirable things in exchange for what they made. It is probable, too, and there are some facts that seem to support the statement, that certain tribes had "specialties"—made certain kinds of weapons because they were favorably located near some bed of stone or had acquired unusual skill. These products were bartered for desirable things possessed by other tribes, and so we have also the beginning of commerce, though it was quite limited in extent.

We are so familiar with the idea of progress, of development, and see around us so many evidences of these forward movements, that we fail to realize the possibility of anything else. We forget that as far as methods of doing things are concerned, the lower animals make very little, if any, improvement; that certain savage tribes apparently have come to a stand-still in their development; that even such countries as India and China seem to have made no appreciable advance in civilization for a long period of time. Just at present, it is true, these countries seem to be entering upon a new era,—one of expansion and progress: but notice that the impulse to do this was not original, but came to them from without. The reasons for the crystallizing of the civilization of these countries will be stated in another article; it is sufficient here to call attention to the fact.

Do we find evidence of progress in the industries during the pre-historic period? Undoubtedly we do. Of course it was slow, and for the most part unconscious,—that is, at first man did not say to himself, "Go to, now, we will improve; we will set before us a high ideal; we will struggle to reach perfection." This is what we do at the present time,—the period of conscious improvement,—and no doubt an eminent authority is right when he asserts that to be a chief reason for our more rapid progress. It is quite probable that primitive man went very slowly from better to better things, hardly aware that he was moving, and often by pure accident discovering a more satisfactory arrangement or device.

At first, the stone axes had no perforations for the handle, and the workmanship was crude and rough. Later, bone was more skillfully wrought into useful forms, and the flints better chipped. A picture of a mammoth elephant scratched upon an ivory tusk shows the early beginnings of the arts of design. In the neolithic age, which succeeded the paleolithic, the chipping and polishing of the stones were excellent, and holes were sometimes made for the handles of the axes. In the bronze age, the form of the axe compares favorably with those in use at the present day, and other instruments of bronze are worthy of high praise.

The evidence of the progress of civilization in pre-historic times becomes more irresistible when we examine the changes that took place in the method of gaining subsistence. At first, men were hunters and fishers—those dwelling near the sea-shore using large quantities of shell-fish, as the heaps of shells still remaining in Denmark give ample proof. Later, they domesticated animals (though it is probable that the dog had previously assisted man in hunting), and entered the

pastoral stage, from which they gradually passed to the agricultural. Not until a settled place of abode was obtained, and easier and more effective methods for supplying the needs of the body adopted, was a secure foundation laid for the mighty structure of arts, sciences, government, literature, religion—called civilization, which was to rise through succeeding ages, and still is only in process of erection.

All these changes we have spoken of took immense periods of time—how long no one pretends to say with certainty. The first traces of man's appearance on the earth no good authority places later than 20,000 B. C., and we have reasonably certain evidence of considerable civilization in Egypt about 4,000 B. C. Of course, progress in various parts of the world was not at the same rate, nor was it identical in kind, but it was so nearly similar that we feel justified in applying the few conclusions we have drawn to all peoples in the early stages of their development.

There are many works on the general subject of primitive man, but perhaps the most helpful to the average reader are the following: Joly's *Man before Metals*; Tylor's *Early History of Mankind*; and a more popular work, *The Dawn of History*, edited by Keary.

DECORATION OF STUDENTS' ROOMS.

BY MAY SECREST, '92.

ONE of the best ways of studying a girl's character is by taking a peep into her room. A glimpse of her room will give you a glimpse of her mental habits. I refer to girls, and especially to girls who "bach it," or who furnish their rooms themselves; but these remarks will apply equally as well to their brothers, although boys are not supposed to know much about decoration. It is strange that students, generally, spend so little thought and time on the decoration of the rooms where they spend the larger part of the year. Unfortunately, they do not have the making of their rooms, so they cannot alter the low ceilings, the bare walls, and the doors from which the paint has been removed by the wear and tear of years. But they can alter the appearance of the bare walls, the bare table, the rusty stove, and the dry-goods box with shelves that serves as a cupboard.

One can scarcely realize, until she has tried it, how a little decoration will improve a room, will take away the lonely bare look, and bring in that easy air that drives away the homesick feeling which often creeps into the student's heart unbidden as soon as she enters her room. I have seen rooms that were perfect little bowers of beauty, where it must be a pleasure to live, and which surely must be an impetus to study. The cost of the decorations was slight, but every thing was so tastefully arranged that you forgot to think of the cost of the material. Very pretty effects may be secured with trifling expenditure; so the student may have beauty around her and still be economical. Pictures that are cheap but in good taste may adorn the walls. If much furniture cannot be afforded, chintz, or cheese cloth over some darker material, may be draped over the boxes that serve as furniture. Dainty curtains at the windows, a rug or two on the floor, and a trifle here and there improve a room wonderfully.

But the greatest aid to the decorator is Nature. She now offers her best and richest stores—leaves of every hue and variety. The student can bring the autumn woods to her room and keep it there to cheer her until the Christmas holidays—indeed, the scarlet bittersweet berries remain bright and cheerful all winter. The winter bouquet of grasses is another of Nature's gifts and is within the reach of everybody. When the student takes her constitutional she can go into the country and bring back not only bright eyes and rosy cheeks, but an armful of trophies that will drive away the "blues"

for weeks, and her lessons will be all the better learned for this little attempt to beautify her surroundings.

Many students say they haven't time for such things, that they came here to study and not to keep house. It is well for such to remember that one who learns to be neat and methodical in her work will be neat and methodical in her use of time.

THE SELECTION OF A VARIETY OF SORGHUM FOR FEED.

BY PROF. J. T. WILLARD.

IN choosing a variety of sorghum for feed attention should be paid to three points, chiefly, viz: The leaves, the seed, and the stalk free of leaves. The number of leaves will depend upon the length of the joints of the cane, and the proportion by weight will be determined largely by the amount of seed and the character of the cane. The amount will vary from fifteen to thirty per cent, being greatest in those varieties having a light, pithy cane, such as is seen in most of the so-called non-saccharine varieties. The absolute tonnage per acre of the leaves will not vary much in the different varieties. The dried leaves of sorghum are about equal to hay in feeding value.

The grain of sorghum is of very nearly the same composition as corn, and other things being equal it is evident that the larger the seed-top the more valuable the sorghum will be for feed.

The cane free from tops and leaves constitutes from fifty to eighty per cent. It is the most variable constituent, but usually is about two-thirds of the whole. In some varieties it is the most valuable, in others the least valuable part. Its hard exterior may inclose a dry, worthless pith, or it may be packed with cells filled with nutritious sap. The former condition is found in the non-saccharine sorghums, the latter in the sugar sorghums. While the non-saccharine varieties seem to be the favorite ones for feed, it is the opinion of the writer that this favor is misplaced if the whole plant is to be utilized. If only the seed is desired, then there can be no doubt that some non-saccharine varieties are to be preferred. But when a variety can be taken which will yield a large crop of seed and at the same time a much greater amount of food in the form of sugar, a wise economy would lead one to choose such a variety.

There are a number of such varieties, but probably the best is that known as Kansas Orange. This year, at this place, upon soil of moderate fertility, this sort has produced about 13 tons per acre. Of this, 1725 pounds, or about six and two thirds per cent, was cleaned seed. The leaves, including sheaths, may be taken to be about twenty-seven per cent, as shown by numerous weighings made in former years. The stalks free from leaves and seed made up the balance, and weighed 8.7 tons. The juice extracted from this clean cane contained 17.6 per cent of sugar, equal to at least 15 per cent in the clean cane and 10 per cent in the whole cane.

We thus have in addition to thirty bushels of seed a much larger weight of the purest food as sugar, besides the other valuable constituents of the juice. It is evident that while some of the non-saccharine sorts may give a higher yield of seed, the total yield of feed will be much less as the stalk free from leaves is of very small value.

For conversion into ensilage the Kansas Orange sorghum is of special value. The grain becomes softened by the juice in the silo and rendered more digestible, thus obviating to a considerable degree one of the great difficulties in utilizing sorghum seed for feed.

If the sorghum is sowed thick with a view to cutting it like hay, it is doubly important that a variety should be chosen which will produce a juice rich in nutritive constituents.

SIMPLICITY—ANCIENT AND MODERN.

BY IVY F. HARNER, '93.

OFTEN we hear our age spoken of as one of perplexing problems—an age in which all simplicity has been supplanted by an impenetrable mass of intricacies. From the standpoint of the unthinking and unobserving portion of the world, this may seem true, while, in reality the reverse is true. We are reminded of those days, long since past, when people led lives of simplicity; we are told of their beliefs and traditions, of how they accounted for this or that phenomenon. Our attention is called to the simplicity of their faith until we almost wish our minds were not so enquiring, our perceptions so acute.

Ancient simplicity may well be called not simplicity, but ignorance. A glance at their myths, legends, and even their history confirms this belief. We speak of their faith in their gods, forgetting that the power attributed to such gods never existed, and their destinies after all were shaped by their own will and action.

Although from earlier ages have come down to us the works of master minds and deep thinkers, yet, as a class, the masses were an uneducated, unthinking people. Even their greatest men were not so free from superstitious ideas as is our most ignorant class of today. Their simple reasons for such events as eclipses, which to us are foretold months before appearing, were absurd in the extreme. These natural wonders were to them but omens, good or bad, as the gods or some witch decreed.

As time advances, we can scarcely imagine the people of our land grasping at the uncouth ideas and theories of ancient simplicity. Although we cannot account for all we see, though our line of reasoning for the causes of these wonderful events is reached only by the most careful thought and study, yet when all is told we behold the wonder as a whole, then in its parts, so minute, so plain, so simple, and yet so complete. We would not ask for the old days of simplicity; rather we would profit by our fathers' experience. As we look around us and compare our way—our knowledge of nature, human nature, and of God—with that of other days, we are thankful that we are an improvement on what has gone before; and although we have yet a world of knowledge to conquer, we have passed from darkness into dawn.

AN EVENING ON A KANSAS FARM.

BY E. HORTENSIA HARMAN, '93.

THE glorious god of day is slowly sinking to rest beyond the low, closely mown hills of the west, bringing out in bold relief against the red-gold brilliancy of the setting sun the many newly built hay stacks that cap the western ridges, while up from the hollows comes that peculiarly sweet and restful perfume characteristic of new-mown prairie hay.

The hay-makers, warned by the falling dew, are preparing to "turn out," and the rake-boy, having released his horse, which meanders slowly homeward, goes whistling across to the adjoining pasture where the cows patiently wait to be driven home. He laboriously drags back the heavy gate, and with well-fed, quiet satisfaction the cows file past, and he follows closely behind. Tired with the past day's labor, and enveloped in the dust raised by the feet of the herd, he doesn't notice the exquisite hues that tint the western sky, the grand calm beauty of Autumn in her reappearance on the "Stage of the Seasons." He remembers, as he turns the cows into the corral, that there is a "round of chores" yet to be done, and a certain vacancy and "goneness" indicates a craving for supper, odors of which come tantalizingly to him as he goes to the kitchen porch for the milk buckets. He jokes Mollie, "the girl," through the kitchen

(Continued on 36th page.)

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Genung's Rhetoric has been substituted for Hill's, as a text-book.

Miss Alida Moody has been seriously ill all the past week, but is gaining slowly.

Rev. O. M. Bowman, of Blue Rapids, led the Chapel exercises Thursday morning.

The students, almost enmasse, attended the political address by Senator Pepper, yesterday afternoon.

Rev. E. R. Brown, of Topeka, was a visitor at the College on Wednesday morning, and took the lead in Chapel exercises.

A force of student mechanics have just completed a new wire bridge to take the place of the old one across the gully south of the College grounds.

Prof. Popenoe, although unable from pressure of College duties to attend the meeting of the Academy of Science, last week, was chosen its President.

Mrs. Bolton, in stepping from her carriage Saturday afternoon last, slipped and fell heavily upon the stone pavement, sustaining severe bruises which confined her to the house for several days.

Miss Ida Benfey, who gave the reading last night, is the guest of Mrs. Kedzie, having formed her acquaintance in Michigan. She stops only a day on her way from California to Eastern States.

The last of the old sheds in the rear of Mechanics' Hall were cleared away this morning, and the unsightly outlook from our back windows no longer exists. The space will be used for a lumber yard.

The political epidemic struck the Alpha Beta and Ionian Societies yesterday, they holding no sessions on account of the anticipated debate between United States Senator Pepper and State Senator Burton.

Dr. Mayo entertained students, Faculty, and visitors yesterday afternoon in a half hour's interesting talk on the mystery of life in its various forms, with a brief account of the Brown-Sequard experiments and resultant elixir.

Congressman Tarsney, of Kansas City, Mo., called at the College on Thursday in company of Mr. Sam Kimble. Mr. Tarsney addressed a large crowd in the Opera House Thursday evening in the interest of the Democracy.

Ex-Gov. Riddell was an interested visitor Tuesday afternoon in company of Dr. Roberts and other members of the A. O. U. W. of Manhattan, which organization the Lieutenant Governor, himself a member, addressed in the evening.

A well-merited honor was bestowed upon Prof. Popenoe by the Academy of Science in making him its President. Prof. Popenoe has made himself an authority in his branch of natural science, and we congratulate him on this last recognition of his conscientious and thorough study.—*Manhattan Nationalist*.

Regents, Faculty, and Faculty wives met with Mrs. Kedzie in the Sewing Room on Tuesday evening to partake of "breakfast" prepared and served by the Cooking Class. Misses Short, Dow, and Conwell, post graduates, presided at the tables. The tender beefsteak, the delicious waffles, done to a turn and sweetened with California honey, and, above all, the excellent service, elicited many compliments for both pupils and teacher.

The officers and students with a few invited guests filled the Chapel last evening to listen to Miss Ida Benfey of California, whose public readings have won praise from the Atlantic to the Pacific. The programme was a miscellaneous one, the grave, the gay, the natural, and the vari-

able finding place in it, and none went away disappointed, although expectations were high beforehand. All are ready to vote thanks to Miss Benfey for her efforts, and to the officers of the College for raising the fund to make the entertainment free to all students. The Department of Music furnished orchestral and piano music for the occasion, and all was given under the auspices of the Committee on Social and Literary Entertainment.

Prot. A. S. Hitchcock, elected to the chair of botany in this College, is a graduate of Iowa Agricultural College, having taken the first degree in 1884, and the second for proficiency in botany in 1886. He was three years Assistant in Chemistry at Iowa University, and for the past two years has been Assistant in Botany at Missouri School of Botany at St. Louis. He has enjoyed the instruction of Prof. Bessey, Dr. Halstead and Prof. Trelease, all of whom gave him high commendation.

BOARD MEETING.

The Regents were all present at the opening of the regular quarterly meeting on Tuesday afternoon.

The routine of auditing accounts occupied a portion of one session, and a general consideration of the condition of the College and immediate necessities most of another.

After the supper provided by the special class in cooking, at which the members of the Faculty and their wives greeted the Regents, a joint meeting of Board and Faculty gave opportunity for each member of the Faculty to state the condition of his own department, the numbers under instruction, and the wants to be supplied. The increased attendance this term, the general advancement being made, and the improved equipment all found mention.

Mr. A. S. Hitchcock, of St. Louis, Mo., was elected to the chair of Botany at a salary of \$1,600 from January first next.

The selection of Mr. F. C. Burtis as Assistant in Agriculture was approved and the salary, fixed at \$600.

The following expenditures were authorized: For two dozen arm chairs, \$30; for carpet in mechanical office, \$15; for chemical desk, \$38; for entomological cases, \$100; for library step-ladders and shelf-guides, \$12; books and periodicals under State appropriation; for work-table in kitchen laboratory, \$100; for machines and tables in sewing rooms, \$65; for drafting tools in shops, \$15; for lumber and metals, shop supplies, \$500; for piano covers, etc., \$10; for shelter of farm wagons, etc., \$20; for magazine for ammunition, \$50; for physical apparatus, \$46; for sample drugs in veterinary science, \$8; expenses in purchase of machinery, \$49.80.

The estimates of the Council for Experiment Station expenditures were approved as follows: Chemical, \$125; Horticultural \$150; Agricultural, \$165; Veterinary, \$200.

The renting of lands held during the present year was left with the President and the Resident Regent. The fitting up of the barn at the west farm for veterinary purposes was authorized.

Regent Finley was chosen delegate to the Farmers' Congress, at Sedalia, Missouri. President Fairchild was appointed representative of the College before the Executive Council.

A vote of thanks was tendered to the *Kansas Farmer* for its admirable account of the College in the issue of September 8th.

The Board adjourned to meet on Tuesday, January 26th, 1892.

GRADUATES AND STUDENTS.

Sam Kimble, '73, is stumping the district for the Democracy.

G. A. Cooper, Second-year in 1884-85, is teaching at Deerfield.

Susie Jenkins, student in 1883-4, visiting in Manhattan, is very sick of hemorrhage.

J. R. McNinch, Second-year in 1890-91, was visiting at the College early in the week.

W. J. Town, Third-year in 1890-91, is attending a polytechnic school at Troy, New York.

E. M. Blachly, Second-year in 1890-91, was seriously injured by the accidental discharge of his gun while crawling through a wire fence. His left arm has been amputated at the elbow, and the index finger of his right hand is gone; but his face and eyes are saved from serious disfigurement, though badly burned. His brother and sister in College have the sympathy of all, while those who

were his associates in years past sincerely grieve over his affliction.

Thomas Bassler, '85, writes from Westgate, Geary County, of a prosperous school and improving health.

L. S. Strickler, Third-year in 1890-91, is helping to improve his father's fruit ranch at Gladstone, California.

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Scientific Club.—President, I. D. Graham; Secretary, Bertha Bachellor. Meets on the fourth Friday evening of each month in Chemical Laboratory.

Y. M. C. A..—President, G. L. Melton; Vice-President, J. L. McDowell; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society.—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society.—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society.—President, A. D. Rice; Vice-President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, I. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society.—President, J. N. Harner; Vice-President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsmen, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

October 16th.
The Ionians enjoyed a very pleasant session. Shortly after the chapel exercises the members of the Society, together with quite a number of visitors, assembled in the hall, with President Gilstrap in the chair, and the Society was called to order. After singing devotion, and roll call, Miss Norton, by initiation, became an Ionian. The first number on the programme was a guitar trio, rendered by Misses Iona Dewey, Alta Lee, and Jessie Hunter. Of course, as all Ionians fully appreciate good music, the young ladies were encored and played the second time the variations of "Home Sweet Home." Miss Bertha Spore entertained those present with a very amusing declamation, entitled "Popping the Question." Music again was furnished by Laura Day, in an instrumental solo. The Oracle for the week was read by Miss Mary Lyman, and proved to be a very enjoyable number. A new feature of the paper was the advertisements that were inserted, some of them being very amusing. In this number also appeared the first chapter of the serial story which will run in the Oracle for several weeks. The discussion was opened by Miss Bell Frisbie upon the question, "Should the course provide three terms of cooking in the second year?" Miss Frisbie is in favor of doing away with dairying in the spring term of the second year, and substituting cooking. She thought that every girl should become a competent cook, and that in the practice which is allowed in one term of cooking, little proficiency can be gained. The different members of the society carried on the discussion, some being in favor of and some opposed to three terms of cooking. The news girl of the week was Miss Mabel Selby. Her report showed careful preparation. Miss Rena Helder closed the programme with a vocal solo, "Only a Blue Bell." After listening to the reports of committees and critic and answering to question roll call, the Society adjourned to meet October 23rd, 1891. L. D.

October 16th.
Alpha Beta Society met this afternoon in regular session. President Harner in the chair. Misses Martha and Sarah Cottrell, Inez and Elva Palmer opened the program with a quartet, "In the shadow of his Wings." Mr. Fryhofer led the society in prayer after which the roll was called. Messrs. Hulet, Buck, and Miller and Misses Stella Kimball, Jessie Whitney, and Mary Morton were elected and initiated. Louise Day then favored the society with a recitation. The next in order was debate on the question, "Resolved, That students should be paid according to their ability and the kind of work." Mr. Thackrey, arguing the affirmative, thought the object of training schools is to train the student for some special kind of work. In order to be educated in that direction he must concentrate his abilities, and the school should help him out in that one thing by paying more for good work. Miss Clark thought that men should not be paid anywhere according to their ability, for abilities are very unequal while needs are equal, and the pay should depend upon the needs. It would be impracticable to pay the student according to his ability, it takes too long to find out each student's ability. Miss Stuart, continuing the affirmative, thought the people cannot afford to pay the poor plodding workman as much as the skilled workman. It is the hard workers that have the ability, and it is not fair to pay them no more for their work. If students knew they would be paid according to their ability they would do their very best work. Mr. Timbers further argued the negative, after which Mr. Thackrey closed the affirmative. He argued that men would lose earnestness in their work if all were paid alike while it paid according to their ability they would strive harder to do something. It doesn't take long to find out a student's ability if he has a good overseer. He ought to have every encouragement possible to make the most of himself. Miss Clark, in closing the negative, said the wealth of the world will not pay more than ten cents an hour to every one. There is a good time coming when men will not want to live richly while their neighbors starve. The judges decided unanimously in favor of the affirmative. Miss Clark then presented the Gleaner, with the motto: "Begin early, begin often, begin all the time." After recess the Society was entertained with a quartet by Messrs. Clothier and Harner and Misses Edwards and Oldham, Mr. Mercer, at the organ. Under informal speeches, Mr. Abell discussed "Elections," Miss Edwards spoke of "Co-education," and Mr. Hulse of "Study." After the newsmen's report, and the usual routine of business, the programme was closed with a quartette by Messrs. Fryhofer, Abell, Clothier, and Abell, and the Society adjourned. O. H.

AN EVENING ON A KANSAS FARM.

(Continued from 34th page.)

window about that "high-water" hay pitcher of hers, meaning one of the favored "hands." Mollie tells him "to go 'long, now, and do that milkin', for supper's 'most ready." He pretends to have something important to tell her—gets her whole attention, then deliberately pilfers a cookie from the kitchen table through the open window, and asks her if she "aint sleepy since Sunday night," whereupon he is deluged with a wash basin full of water, and runs off toward the milk yard, clanging the buckets and singing "Can anyone tell me where Nancy's gone," to which care-free refrain the hungry calves add a most emphatic if not musical chorus.

The men have come rattling in from the hay field, and "divide up" among the chores. There is watering and feeding of horses, the load of hay to be pitched into the mow, and wood to be chopped for morning. The hogs are fed and "slopped," while their squeals and grunts come prosaically through the still, calm twilight.

At the supper table full justice is done to the substantial food set before the tired toilers. The conversation could scarce be termed "a feast of reason and a flow of soul." The boy still bears evidence of his escapade with Mollie and the wash basin, and, of course, must give a detailed account of it, much to the embarrassment of the "high-water hay pitcher" and the hilarity of the rest. Mollie, in bringing a dish to the table, accidentally (?) drops a hot potato down the back of her persecutor's neck, and the laugh is turned on him.

After supper, the girls wash the dishes, cool and strain the milk, and prepare a few things for an early breakfast. They possibly join the boys of the family, and with mother or father read a short time, but everybody is weary, and soon all the lights are out. From upstairs come sounds in various keys, indicating the heavy, dreamless sleep of tired nature.

Outside, the autumn moon bathes all in mellow light, the gentle south wind rustles the leaves of the cottonwoods, and the fleecy mist comes slowly up from the slough and caressingly hides the old farm house from vision.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

There are forty colored children attending school at Independence this year, as against none last year. This is quite a gratifying percentage of increase.

The Kansas Baptist State Convention held at Atchison last week decided to raise \$50,000 for the endowment of Ottawa University. John D. Rockefeller, the Standard oil man, will give \$10,000 to the institution, if the churches of Kansas will raise the \$40,000.

We are in receipt of the programme of the Ottawa County Teachers' Association, 1891-92. It provides for eight winter meetings and asserts that "no session will be postponed on account of inclement weather," and that "there will be no room for drones in the hive. Be not simply good, be good for something."

The State Normal School deserves the sympathy of every patriotic Kansan, for the Supreme Court has affirmed the opinion of Attorney General Ives to the effect that the Regents of the State Normal School have no right to draw on the State treasury without a special act of the Legislature appropriating it for that purpose. This decision may inconvenience the school, but will not close it. The people of Kansas have sufficient pride in the institution to sustain it by private subscription rather than see it discontinued, even for a brief interval, but that will not be necessary.

The sessions of the Kansas Academy of Science, held at Ottawa last week, were full of interest and profit. About 100 delegates were in attendance from all parts of the State. Among the distinguished visitors were Dr. Thompson of Topeka, Chancellor Snow of Lawrence, Prof. Blake, the inventor of the ocean electrical transmitter, Prof. Hay, of Junction City, Prof. Bailey, Prof. Franklin, Prof. Gertrude Crotty, Prof. Sayre, Dean of the Department of Chemistry in the State University, Prof. Frank Marvin, and many others. Thursday night a reception and banquet were given at the Centennial House by the Ottawa Science Club in honor of the distinguished visitors present. Perhaps the most interesting part of the entertainment was the program of toasts which followed the banquet. The post-prandial efforts were most happy in all regards, and showed the speakers to be broad and cultured, as well as thorough in research. On Friday night a lecture was given by Prof. Blake of the State University on "Electricity."

The expense of attending college is something which no one can afford to overlook. Even if the student's money is plentiful, it is unwise to pay extravagant prices. Habits of economy are as important to the rich as to the poor. The man or woman who deliberately pays more for things than they are worth and can be obtained for in the market, is on the road to financial ruin, no matter how large his or her estate may be. Now it is well known that at many colleges (even in this western country where people have such sensible views in regard to money) false notions prevail in respect to the part which money plays in education. Persons in charge of colleges may have foolish, aristocratic notions; and though as a matter of policy, they disclaim in words the views which they really entertain, yet, "actions speak louder than words," and it rarely happens that students do not unconsciously imbibe the sentiments of teachers. It is better, then, even for the rich man to send his children to a school where economy is encouraged, and believed in both by teachers and students; but in the case of young men and women of limited means, it will often make the difference of a year or two at school. —*Great Bend Normal.*

Mr. Weston Flint, statistician of the Bureau of Education, Washington, D. C., sends us the following statistics as supplementary to, and explanatory of, a remark recently credited to him: "Not including colleges for women, the percentage of students in colleges to the whole population was in 1880 one to 1,655; in 1890, one to 1,355, an increase of over twenty-two per cent. If we estimate the college age of students as from sixteen to twenty-four, then of this college age of the total population there were in 1880, in college, one to 302; in 1890, one to 252, an increase in ten years of almost sixteen and two-thirds per cent. Of course these latter figures are only estimates. The figures

as to total population are correct, and show that for the past decade the increase in attendance upon the colleges has kept pace with the increase of population."

B. W. Jones, in the *American Agriculturist*, says: "The dog—the good dog—has a prominent place in our social and domestic economy. He is ornamental and useful: his friends believe in him as a cheerful companion and a trusty servant; and they make him, as much as he can be, a member of the family circle."

MANHATTAN ADVERTISEMENTS.

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PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

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SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

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STUDENTS should buy their Bread and Pastry from J. F. SAICHISON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 31, 1891.

NUMBER 10.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY OF THE COLLEGE.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

IRON-WORK AT THE KANSAS STATE AGRICULTURAL COLLEGE.

BY PROF. O. P. HOOD.

IN the equipment for the higher education of her sons, nearly every State counts a number of school shops in iron-work as well as wood-work in connection with her colleges. The value of these school shops, both educational and practical, has been a debated question; at present the debate seems entirely one-sided. Whether used entirely for educational purposes, as in manual training, or for purely practical purposes, as in the numerous trade schools, the equipment of these school shops is very similar. Kansas has not until recently had an equipment of this kind for iron-work.

During the past summer this College has acquired an equipment which is comparable at least with those of her western sisters, and has already started in a new building regular classes in practice in iron-work for educational and practical purposes. A description of the equipment, and a statement of the advantages offered, may be of interest to some. The room used for iron-work is in a light, well-ventilated structure built specially for this work, and possessing some features out of the ordinary in school and shop construction. A room forty feet wide by eighty feet long, unincumbered by posts, receives light from north and south, through windows which form nearly the whole of the long side walls. The windows being eight feet of glass in height, and forming eighty per cent of the length of the building, any trouble from lack of light is impossible. Iron trusses ten feet apart support the roof, and also carry, fourteen feet above the floor, all hangers, shafting, counter-shafting, etc. On the ridge of the roof, twenty-five feet above the floor, a raised skylight sixty feet long helps both light and ventilation. An exceptionally rigid floor furnishes a foundation for the heaviest tools. This room is intended for a machine shop, and contains at present the blacksmith forges also. As an addition to this, a foundry building twenty by forty feet is attached, together with store houses.

The first term of iron-work is devoted to blacksmithing, and the student finds the following equipment: Eight iron forges of the Sturtevant portable variety, each forge having its proper anvil and common tools and full set of special tools for general use—all that would be found in a well furnished blacksmith shop doing general work. To remove the smoke from the forges, a large exhaust fan is kept running from the line shaft, or by an auxiliary oil-burning Shipman engine when the large engine is not running. A practical blacksmith gives instruction to classes two and one-half hours each afternoon, and students may carry this line of work as far as time and inclination will allow. If a general course in iron-work is followed, the second term is devoted to the foundry. A well-equipped iron and brass foundry will be completed in a few weeks. A first-class cupola furnace of the Colliau pattern will melt from one to two tons of iron per hour, and practice in floor moulding and bench moulding and actual furnace work will give practical familiarity with cast iron. A dozen well-furnished moulding benches and a good brass furnace will be used for the bench moulding. A No. 3 Sturtevant blower is used with these furnaces.

Most of the third term will be devoted to bench work in the machine shop. Benches with fifteen vises are arranged along the wall and contain thirty locked drawers, each having a small kit of machinists' tools, including files, hammers, cold-chisels, laying-out tools, calipers, etc. Filing, chipping, and laying off work are the first lessons.

The following machines of the very best makes are also for use when sufficient advancement has been made: A 26-inch by 26-inch by 6-foot planer of the G. A. Gray Company's build; an F. E. Reed lathe, 14-inch swing, 6-foot bed, raise and fall rest, with taper attachments; a second similar one with compound rest; two Flather plain lathes, 14-inch by 6-foot bed; one Lodge Davis 12-inch by 5-foot lathe for light brass work; one speed lathe arranged for screw machine work; a 24-inch back-gear and power-feed drill press; a small sensitive drill for light drilling; a double emery grinder and power grind stone. With seventy feet of shafting, these tools are run by a Sturtevant 5-inch by 5-inch high-speed vertical engine supplied from the boiler in connection with the wood-work shop.

No better tools are made than those from Gray, Reed, Flather, and Sturtevant. In justice to a number of firms, mention should be made of liberal gifts to the Department. The B. F. Sturtevant Company of Boston presented a large 30-inch exhaust fan for the blacksmith shop and about half of our forges, also making extremely low prices on other machines bought of them.

The G. A. Gray Company of Cincinnati made a partial gift of our planer. The Reeves Pully Company of Columbus, Indiana, presented us with a large number of the best wood split pulleys made. This style of pulley is used throughout the shop as being altogether the best. Other firms dealt with made liberal discounts on tools for College purposes. A tool room with the necessary small tools for a line of general manufacture completes this equipment. The work is expected to give to students in the regular course a general understanding of the properties of the metals and the methods of working them. They will then be able to use properly the multitudes of machines now employed in shop and farm and home.

A post-graduate course is provided in connection with special work in the sciences, which makes the course the equivalent of a good technical training in all the practical essentials. This further course in mechanical engineering is based on a study of machine design and prolonged practice in the machine shop. It includes mechanical drawing, machine sketching, study of machine details from the best authors, machine design, graphical statics, study and practical laboratory work in dynamical engineering, and workshop practice in amount equal to that given in technical courses. A superstructure of this kind has a decided advantage in the broad foundation given by the general college course of the four preceding years.

The Mechanical Department has added the above provision for iron-work this year, having already a wood shop, with equipment of power and hand tools, equal to the best to be found, for 200 students daily.

FRUIT JUICES AS A BEVERAGE.

BY MINNIE REED, '88.

THE juices of various fruits, especially of grapes, have long been used as drinks. In every reference to this juice in old or modern writings, it is called wine, and was probably fermented just as wine is now.

In the laws that the Lord gave to Moses for the Nazarites, the use of the grape was forbidden. We naturally draw the conclusion from this that the wine habit was then becoming a curse, as it is now in the nineteenth century.

In the last few years, people who are especially interested in temperance or hygiene have turned their attention to something that would take the place of wine.

Almost every one has a natural liking for a mild,

stimulating beverage. The normal appetite seems to call for something slightly exhilarating, as coffee, tea, or chocolate. This liking, in some cases, becomes stronger, and then wine is demanded, as an actual necessity.

It has been found that the pure, sweet juice of any fruit will entirely satisfy the normal appetite, and furnish the desired stimulant. These juices not only furnish a pleasant stimulant, but also much nourishment, without leaving behind any injurious effect, as do wines and other fermented beverages.

The juice, pure and simple, or sweetened to suit the taste, is heated boiling hot, then bottled and sealed air tight to prevent fermentation. This will retain its quality indefinitely, if kept in a cool, dark place. A glass of this juice given to a convalescent or invalid will refresh and strengthen him. If one has become exhausted and lost his appetite, a glass of blackberry or grape juice will be refreshing and invigorating. It seems to contain at least a small portion of the elixir of life, if we may judge from its effect. We know at least that it contains sugar, gums, various salts, dextrine, pectose substances, with about ninety per cent of water, and is flavored with delicate ethers, making a most delicious drink. It more than takes the place of stimulating cordials and tonics, for it contains nutriment, besides the elixir, or stimulating element. A few spoonfuls may be safely given to the weakest invalids or sick children with beneficial effects.

Any busy housewife can bottle a few quarts of different kinds of juices while she is doing her fruit canning, and not miss the time. Many times the juices are put in earthen pots and cooked down to a jelly, and set away in jars without sealing. If this be done, it may be set into the oven out of the way, and requires very little watching while the fruit canning is progressing.

This concentrated jelly does not have so delicate a flavor as that which is simply heated and bottled. A table-spoonful of this in a glass of water, with a little sugar, makes a very pleasant, cooling drink in case of illness, or in very warm weather, when one is apt to drink too much water.

The juices of the blackberry and grape are most valuable for invalids, and that of the raspberry stands next. The juices from any watery fruit are all very fine if properly prepared and canned.

There would be much less labor and energy expended if fruit juices were served with the cake or other refreshments at evening receptions, instead of strong coffee; and the guests would be much more refreshed, and less liable to lie awake afterwards.

We might well copy this one custom from the Turk, whose Koran forbids the use of the grosser beverage, wine, but allows the use of this ambrosial nectar of the gods.

KILL A DOG AND PLANT A TREE.

BY SECY. I. D. GRAHAM.

SOME of the inhabitants of one of the Ancient Greek isles, wasn't it, who had the custom, when planting their groves, of killing a hog therein as a propitiation to the sylvan god and for the good luck of the planter?

With our nineteenth-century ideas, few Americans would care to follow this idolatrous example, and yet the most of us would be better off for having planted a few trees. We care nothing for the ancient god of the groves, and would hardly be willing to sacrifice a hog if we did, though many of us could better spare a hog than be without trees; but the example of planting trees is a most worthy one, and, in deference to our western prejudices, we might possibly be allowed to substitute a dog.

How many farmhouses does one pass on a journey through Kansas about which there has been no

attempt to grow trees, and how comfortless and unhomelike do these houses appear. And how uniformly is it true that at each of these places is to be seen a congregation of worthless, noisy, disease-breeding dogs. Trees cost so little, and yet are so valuable, while dogs cost so much, and are so worthless, that one can only wonder why this choice was made.

It may be urged that the treeless man is poor, —too poor to afford trees about his place,—and yet there are the dogs, whose yearly support would more than pay the price of many trees. I do not wish to be understood as condemning the whole dog family, for a good dog is a good thing for any man to own, and no one would value him more highly, but "there's odds in dogs," and one is generally enough on a fa.

Besides enhancing the value of the farm, furnishing a welcome shade and wind-break, bearing fruit, and supplying firewood and fencing material, trees are civilizers and humanizing agents, and are well worth their little cost for their educational influence. "The groves were God's first temples," and some of the grandest events in history have taken place beneath their shade. Of course, "there's odds in trees," too, but any kind is better than none, and the man who can grow trees about his place, and don't, is either too entirely ignorant of their value or too lazy to be ranked as a Kansas farmer.

ROADS AND ROAD-MAKING.

BY SECY. I. D. GRAHAM.

IN reading the agricultural papers from different parts of the country, one can but be struck with the frequent references which are made to the state of the country roads, and the many suggestions offered for their improvement. While it is doubtless true that many of these remarks come from localities where the roads are oftener bad than good, a short drive on almost any road in Kansas will serve to convince one that there may be room for improvement here.

Kansas was formerly a land of proverbially good roads, but since the State has been fenced up and traffic confined to the narrow limits of a country lane, much of this credit has been lost. Our teams are obliged to pull their loads through a stratum of dust, which certainly does not add to their comfort, their speed, nor the ease with which they do their work, or they go floundering through an equal depth of mud, which costs heavily for their owners.

Perhaps no one doubts that the usual condition of the roads in either a very dry day or a very wet time is direct drain upon the pocket-book of the traveller. If he does, just let him consider that time is money, and that anything which will retard his progress in going to town, either in his buggy upon business, or in hauling his crops to market, will deduct just so much from his income by increasing his expenditure of time. Often this is an important item, and the condition of our roads which is the cause of it all can only be attributed to our abominable system of working them.

When the farmer realizes that good roads mean less work for his teams, less cash outlay for repairs to harness, shoes and vehicles, less labor for himself, and less loss of time, he will at least feel willing to elect a pass-master who knows something of road-making or is willing to learn, and who will cease working roads in the spring of the year.

Of course it is not to be expected that Kansas country roads will at once be made to equal the Roman viaducts which have withstood the wear of centuries, but a few simple reforms may be readily made which will pay every individual traveler well. Instead of calling out the neighbors after corn planting, and spinning yarns on the up-turned scrapers for two days, with sufficient labor

thrown in by way of variety to leave the roads heaped with ridges of soft dirt and soil ready to mire the first passenger who follows a rain, why not abolish spring road-making entirely. In the late summer or early fall, the earth is nearly always dry, and work done then will be well packed and hard before the fall rains come.

Instead of accepting the pitiful travesty of "working road tax" in full of the legal requirements, let each man pay his tax in cash to an officer who will expend it in doing work which will not need to be done over again with each recurring spring; and finally, let each man in the neighborhood think a little about road-making.

POLITICAL DISCUSSIONS AND DEBATES.

BY IVAN PARKER. '92.

MEN are beginning to realize that the best way to get at the merits and demerits of political policies is to have them discussed in a fair and unbiased manner. They are beginning to see the uselessness of what they thought to be the only cure for evil methods in politics—"independent political action." The "independent" in politics has the same relation to effect reform as drops of water on the circumference of the water-wheel have to the working forces within the revolving buckets. Political discussions have done much to destroy this independent action in politics, taken by many individuals; and they can do much more if they are confined more closely to the principles, platforms, and policies of parties in place of the qualities and character of candidates.

Young men who are just ready to exercise the privilege of voting are, or should be, anxious to learn the objects and policies of the different parties. They can, however, form no just conception of any party's principles while party leaders resort to the "sky-scraping generalities and rainbow pictures of blissful perfection," as a prominent eastern minister puts it. The intelligent young man will usually go away from one of our average campaign discussions more disgusted with politics than he was before he heard it, while a few will yell for the party whose representative can utter the most vituperative remarks. This should not be thus, for with the young men of today depends the future of the nation; and the knowledge a young man gets of politics from such debates is very limited indeed.

We do not care what Webster or any other politician said. What we do care to know is, political principles as related to political economy. We want to know the facts about the present political conditions and the best methods for carrying on the Government in the future for the greatest good to the greatest number. We want to know the conditions of all classes; how to get absolute freedom of political action, free thought, free speech, freedom of political organizations, a free ballot, and true returns. These are but a few of the wants which might be fairly discussed with benefit to us all.

Occasionally we find men who will confine themselves to these questions, and it is then that we get a glimpse of the real value which might be derived from political discussions. To such men is due all progress and reformations in politics. But while we are criticising the leaders, let us look to ourselves, and see that our minds are in a condition to listen to all sides of a question. Remember that a fair discussion will do you no good if you go to it with your mind made up before hand that the Alliance or the Republican or the Democratic speaker is going to produce the best argument; and, I am sorry to say, this is the case with many of us.

The key-note to the whole affair is fair speaking and fair listening, and this is the only way a just estimate can be formed.

[Continued on page 40.]

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Miss Clara Fryhofer, of Randolph, visited her brother and sister in College the first of the week.

Assistant Chemist Breese has enjoyed a visit from his brother, of Cottonwood Falls, for a week past.

Mrs. Wells of Kansas City visited her son in College on Tuesday, and expressed delight with the College.

Bulletin No. 24, now going through the press, deals with "The Staggers" in horses as a result of feeding mouldy corn.

Prof. Georgeson is on the look-out for about twenty head of steers which he expects to feed experimentally during the winter.

A large number of students testified to their interest in politics by attending the open meeting of College Hill Alliance, Tuesday evening.

Mrs. Fairchild is spending the week in Kansas City with her daughter, Mrs. Kirshner. The President joined in the visit last evening.

The Secretary's office is greatly improved by the addition of the large window in the hall partition. Increased office room and better light result.

The wheat is up all over the farm, and is growing nicely, the continued warm weather favoring its progress, and although sown late has a good start and promises well.

The sugar beets raised by farmers of the State for experimental purposes are coming in from all quarters at the rate of from ten to a dozen packages a day. They are a fair average lot.

Mr. Eugene Fairchild, a grand-nephew of Pres. Fairchild, is visiting at the College for a few days. He is on his way East from Texas, where he was employed in the rain-making experiments of Mr. Dyrenforth.

The dairy cattle, and cows with calves, have been in the barn for sometime past, but the main portion of the herd is still in the pasture, the warm weather favoring the growth of the grass and making good feed.

The stock in the barn receive a daily ration of mangels, grown on the farm this summer, which yielded at the rate of fourteen tons to the acre. They prove to be very acceptable feed with hay, corn, and sorghum fodder.

The Farm Department is building a shed on the east side of the corn cribs, as authorized by the Board at their last meeting, under which to shelter wagons and other implements that cannot be accommodated in the regular shed.

The Chemical Department is driving a beet pulper in the multitudes of analyses required to determine the value for sugar-making of the three hundred and more lots of beets raised in as many different places and now coming in daily.

Pres. Fairchild was absent from College duties on Wednesday in attendance upon a meeting of the State Board of Education, and in consultation with State officers and officers from the University and the State Normal School over financial difficulties brought about by the recent ruling as to the income fund of these institutions.

Two graduates from the Agricultural College have entered professional classes here this term. One of them has been chosen as one of the eight orators annually elected by the Normal Oratorical Association. From these eight is finally chosen the member who shall represent the institution in the State contest.—*State Normal Notes in Emporia News*.

Lieutenant Bolton received notice on Wednesday of his promotion to a captaincy. Capt. Bolton's friends have known for some months past

that he headed the list of First Lieutenants for promotion, and while the news is no surprise to them, they rejoice none the less in the Captain's good fortune, and particularly that his term of service at the College will not be shortened.

GRADUATES AND STUDENTS.

R. U. Waldraven, '89, is on his father's farm in the northern part of Riley County.

A. F. Cranston, '90, is an assistant in the Law Department of the State University.

F. M. Linscott, '91, has gone to Montreal to take a special course in veterinary science.

M. O. Bacheller, Third-year, went to Rush County yesterday to vote in order to hold his claim.

E. J. White, Second-year in 1885-6, is one of the leading machinists in the Missouri, Kansas and Texas Shops at Parsons.

E. A. Barber, First-year in 1890-91, spends this year at his home in Parsons, but hopes to return next year and continue his course.

Miss Alida Moody was able yesterday to be moved to the home of her brother near Lawrence. Her sister and brother accompanied her.

W. J. Wirt, student in 1882-3, is filling the position of pattern-maker in the Missouri, Kansas, and Texas Railway Shop at Parsons.

Geo. Adgate, Second-year in 1888, is in the employ of the Souy Smith Bridge and Building Company, and is at present in Sioux City, Iowa.

W. T. Swingle, '90, is gaining an excellent name among the workers in vegetable pathology at the Department of Agriculture in Washington.

B. A. Knox, Second-year in 1890-91, is at home for a short visit. He is locomotive engineer on the "Mountain Division" of the Santa Fe Railway.

J. S. Hazen, '89, has been transferred from Santa Fe to San Francisco by the Signal Service, in whose employ he has been for more than two years past.

R. J. McNinch, Second-year in 1890-91, visited College friends on Tuesday. He is teaching the Peach Grove school, eight miles northwest of Randolph.

D. G. Fairchild, '88, has finished his season's work in diseases of nursery stock at Geneva, N. Y., and is back at his desk in the Department in Washington.

G. W. Wildin, R. A. Clark, and J. L. McDowell visited Parsons, Sunday and Monday, as delegates from the College Association to the Interstate Convention of the Y. M. C. A.

F. W. Adgate, Second-year in 1888-9, will receive letters addressed to him at Waubay, South Dakota, where he is stationed as Instructor in the use of Farm Machinery on an Indian Reservation.

J. E. Dorman and Clara Dorman, both students last year, have gone to assist Mr. and Mrs. Cottrell in their new home on the Hudson. Mr. Dorman will have care of the cattle on the farm of Vice-President Morton.

Miss Winnie Jenkins, who has been visiting with Mrs. Jonathan Davies, died this week after repeated hemorrhages of the lungs, and was buried at Bala, her home. She has been failing for several years in consumption.

W. F. Klemp, Second-year, in 1885-6, writes from Chicago that he has been working this summer as draughtsman in the construction and foreman in the erection of the new Unity Building, 75 to 83 Dearborn Street, noted as one of the most rapidly erected structures of the kind in the world. He says that the structural iron work for the full 16 stories was erected in nine weeks and four days, and that the brick work will be completed within 15 weeks from the time of commencing.

Whereas, our fellow classmate, E. M. Blachley, has met with a severe accident; therefore, be it

Resolved, That we, the Class of '93, extend to him our heartfelt sympathies, and wish him success and prosperity notwithstanding his injuries; for in him we recognize a spirit that will not be kept down by this misfortune.

E. J. ABELL,
EDITH McDOWELL,
ALBERT DICKENS,
Committee.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Y. M. C. A.—President, J. L. McDowell; Vice-President, J. B. Thoburn; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society—President, A. D. Rice; Vice President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, I. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society—President, J. N. Harner; Vice President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsman, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

October 24th.

With a house full, President Rice called the house to order at 7:30. After roll call, Mr. Boardman led in devotion. Messrs. Pellet, Rogers, Grecian, Hailer, Fildley, Sreechfield, and Barnett were added to the roll of Hamiltons. The "Widow Spriggin's Daughter" was very well declaimed by Mr. Bryant, on his first appearance before the society. The use of the metric system of weights and measures should be made compulsory in the United States, was the proposition debated on the affirmative by M. V. Hester and J. J. Johnson; on the negative by C. R. Hutchings and R. Wells. The affirmative argued that if we admit the present system of weights and measures to be best for the present time, it cannot be so in the near future, and a better system should be adopted to meet the wants of the coming generations. It should be adopted at once, as it takes a long time to establish such a public measure. It took England 400 years to establish her present system of weights and measures. The United States and England are the only great nations that have not adopted the metric system and put it into general use. If it were adopted it would promote uniformity of weights and measures among nations and thus facilitate commercial transactions. Reduction of the metric system is very simple compared with that of our old system, therefore more desirable (illustrated). It is growing in favor with professional men, as shown by its use in scientific calculations. To keep up with the times, we should adopt the improved methods that other nations are using. The metric system is used in the custom-houses and other places where accuracy is required. Its use is compulsory in nearly all the states of South America. The metric system has but a dozen names to be remembered, compared with the many names in the old system, making it desirable for common use. It would cost something to bring it into use, but we must expect to pay for improved methods by which we are benefited. But if brought into use gradually it wouldn't cost much. After a short time we would have no trouble with equivalent values. The negative, on the other hand, claimed that before the United States government should adopt another system of weights and measures, it should have one enough superior to pay for the trouble of exchanging. A perfect system of measurement should have the unit of length equal to one of the sides of the unit of square measure. And the unit of weight a cube whose edge is the unit of length. For these reasons, the metric system is undesirable. It is not in use among the common people in the old countries as one might suppose. The difficulty of bringing it into general use, is a great objection to its adoption. It would cost \$124,000 to put it into effect in the post office alone. Educated men make use of it only by referring to a hand book, and that shows the average citizen couldn't make a practical use of it; while our old system is growing more convenient everyday in making measurements. It would be difficult to give the height of horses in meters. Before adopting a new system, we should have one in which there is a closer relation between the units of measure than there is in the metric system. Messrs. Holsinger Jones and Joss decided two to one in favor of the negative. J. D. Riddell then presented the news of the week in a very pleasing manner. After ten minutes recess, W. E. Smith entertained the Society with a couple of instrumental solos on his "Bullcombrino tuberosa," an instrument for which Mr. Smith's musical and mechanical genius deserves much credit. Mr. R. then delivered very creditably a well-written oration, "Peace hath her victories much more renowned than war." The Society next took up extemporaneous speaking, on the subject: Are joint debates on political questions a benefit? C. P. Hartley made some very appropriate criticisms, and the Society adjourned.

October 24th.

President Tucker called the Websters to order. Devotional exercises, led by Mr. Hulet. The names of the following persons were added to the Webster roll: Messrs. Trembley, Newby, Farris, Brookhart, Rhodes. The programme opened with a debate on the question, "Resolved, That cremation should be substituted for the usual mode of burying." The affirmative was represented by Mr. Edelblute and Mr. Ginter, the negative by Mr. Hartley and Mr. McCauley. Mr. Edelblute, the first on the affirmative, told of the early history of cremation as practiced by Greeks and Romans down to the Christian era. He gave the modern plan by which it is accomplished—the burning of the body to ashes, the collecting of all gases given off in receivers, whence it is conducted into a vessel of superheated steam, thus killing all the germs of disease, which are allowed to live and spread if the body is disposed of in the usual way. Again, if the body is buried, many gases are generated by the decomposition and seek the surface either by natural or artificial orifices in the ground; the air becomes polluted with these gases, the result of which is disease—malaria, or something of that nature. Moreover, cemeteries are always found on a hill, the drainage from which has positively been proven a breeder of diseases; and from a sanitary standpoint alone, the mode of cremation would be a benefit. Mr. Hartley, the first speaker on the negative, admits that during the early periods of Greek and Roman cremation was the mode of burning; but as soon as the Christian era began, as soon as the Christian religion began to have an effect it was abolished, because the Bible taught that a Christian should respect the body of the dead. He says that the burning of the body to ashes is a disrespectful way of disposing of it. He proposes a better way, i. e., the placing of the body in a case, passing not dry air over the body until all the juices are driven off, leaving the body dry in its natural shape and form. By this method all contagious germs are killed, the body preserved in this state for any length of time, and friends may see and recognize their departed at all times. Mr. Ginter, on the affirmative, says by cremating we do in a short time what requires many years for nature to do, i. e., the return of the body to its dust; that nothing is enticing about death and burial; and if we can dispose of the remains in a way that is a benefit to us by destroying disease germs, it is only Christian-like to do so. The assistant on the negative, McCauley, says all these impurities—foul gases, etc.—that have been charged against the decomposition of bodies is a mistake, for, ninety-nine times out of a hundred, these contagious diseases are brought about by the stench of those who are alive—men who live in filth as is found in all our cities. More deaths are attributed to the use of tobacco, whiskey, and running around nights than to the impurities arising from the decomposition of buried bodies. After a recapitulation of points by the leaders, the debate was closed. Decision of the Society was in favor of affirmative. Declaration by F. W. Morse. A. J. Coon read an interesting essay on "Good Manners." A. S. Houghton delivered a declamation "An essay on 'Sa't: Its Composition, Manner of Obtaining, and Uses,'" was read by C. Green. An interesting number of the Reporter was presented by E. R. Burtis. Discussion on "Politics in General," by M. F. Hulet, afforded an opportunity for all members to show their colors. After considerable business in the way of amending constitution, the Society adjourned.

Sec'y.

POLITICAL DISCUSSIONS AND DEBATES

[Continued from page 38.]

Do not understand me to say that campaign debates are a failure; but I do say that they can be much improved on to accomplish the objects they should be for, and hence made a greater success. Not only will they aid young voters in selecting a party, but they will awaken a general interest in politics which every true American citizen should make his duty to at least partially understand. Then let us dispense with these word pictures of deepest despair and superlative loveliness, and confine ourselves to the true state of affairs.

ADVANTAGES OF A LITERARY SOCIETY.

BY D. H. OTIS, '92.

NO part of a college education is of more practical benefit or of greater interest than that connected with the literary society. Most of our graduates will tell you that the training received at the society is worth more to them than any one study in the whole course. A person learns many things in the society necessary in after life which it is impossible to learn anywhere else.

Here he is free from the class-room restraints; not that he despises the class-room, but for the very reason that he is thrown upon his own responsibility he will make more of a man of himself. Here he obligates himself to take part in a programme, and the mere act of preparation will be an incentive to originality not only in thought, but in the manner of handling the subject.

Rhetoric may tell you how to conduct a debate, but it is in the society that you learn to put this knowledge into practice. The same may be said to a greater or less extent of the other exercises. In the discussion, the object is not to write in full upon the subject and then to read or memorize it, but to have merely an outline and to speak from that; in other words, to make it as extemporaneous as possible in expression.

The society paper affords an excellent means of improvement, being written by members of the society from an interest rather than a task. All of these exercises give the student confidence in himself. It is a noticeable fact that among the students who speak in chapel, those from the societies, in nearly every case, feel more at home and deliver their orations with greater effect.

The holding of official positions gives a valuable insight into modes in which the business of ordinary societies and conventions is conducted.

Last, but by no means least, comes the drill in parliamentary law. It is surprising how much ignorance is displayed throughout the country in regard to these rules for orderly business. At a meeting of a certain School Board, when a motion was made and amended, the Chairman was in doubt whether the original motion or the amendment should be voted on first. He finally decided that the original motion came first and the amendment afterward. No one else seemed to know that the Chairman was wrong.

The day is rapidly approaching when such ignorance will be inexcusable. Let the college students be well drilled by making good use of their opportunities in the literary societies, that it may come the sooner; then when it comes our turn to step onto the field of action we will be prepared for the duties that confront us. If we are called upon to debate a question, we shall know what it means. If asked to discuss a certain subject, we can do it with discretion and ease. When persuaded to write an article for a paper, we can do it with better satisfaction to ourselves and to the public from having had similar work in the society. Finally, should we ever be called upon to act as Chairman of any convention or public meeting, we shall be ready, realizing that to a great extent the Chairman is responsible for the way in which the business is conducted. So throughout our whole lives, we shall find practical use for the knowledge gained in the societies.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Kansas has 12,000 school teachers.

The schools of McLouth have been closed on account of diphtheria.

The Faculty of the Presbyterian College at Emporia has squelched a fraternity which had organized there several weeks ago.

"Prairie Flowers" is the title of a book of poems published by Crane & Co., Topeka, at the price of \$1.25 per volume. The author is John W. Beebe, of Kingman, Kansas.

The N. Y. *Tribune's* report of the awarding of the Greek prize for admission into Yale College speaks of Alburn Edward Skinner of Ottawa as having received favorable mention by the Examining Board.

A monument to James Morgan, who lost his life last winter while bravely attempting to save a drowning comrade, was unveiled at Winfield last Sunday. The money was subscribed by the citizens of Winfield, headed by the *Courier*.

The *Agora*, the Kansas quarterly, will be continued, notwithstanding the removal of the Rev. E. P. Chittenden, its founder, to Minnesota. Mr. T. E. Dewey of Abilene, President of the Kansas Academy of Literature, will be the future editor.

Col. J. H. Brady has just added quite a large collection of birds to those which he had already in the public school museum. The youth of Solomon are now blessed with an extensive collection of birds, animals, and fishes, which will materially aid them in their studies.—*Solomon City Sentinel*.

The Osborne-Russell County Teachers' Association was held at Luray, Saturday, October 17, 1891. The welcome address was made by Superintendent J. R. Bickerdyke, reply by Superintendent Tammie Hahn. A history of Osborne and Russell Counties was then read, after which a bountiful repast was spread in the school house for the visitors. The afternoon session was very enjoyably spent. The attendance was good, there being 30 from each of Osborne and Russell counties and some from other counties.—*Downs Times*.

The teachers of Minneapolis do not allow themselves to stagnate. The *Messenger* of last week says: "There is a vacation in the city schools beginning on Thursday of this week to enable the teachers to make their customary visit to other schools. All the teachers, excepting Mrs. Henry and Mrs. Hodson, teachers of the primary rooms, went to Emporia on Wednesday evening. Two days will be spent in the schools at Emporia, after which Miss Lovewell and Miss Wilcox will go to Hutchinson, and the rest of the teachers to Lawrence."

A few days since two lady students of the State Normal School who had left everything nicely in order at their room in the morning, returned before noon to find it in flames, the fire company dashing water in at the windows, and all their clothing, worth from \$175 to \$200, burned to ashes. The origin of the fire is a mystery. They had no stove in the room and had left no fire burning. Pres. Taylor brought the matter before the school, and gave an opportunity for those who wished to help the girls in bearing their loss. \$115 was thus given in a purely voluntary way, a pleasant illustration of the good fellowship that prevails among the students.

Kansas lost nearly a dozen well-known educators this fall: James H. Canfield goes to Nebraska as Chancellor of the State University; G. G. Ryan, to New Brunswick, N. J.; Buel T. Davies, to Minnesota as Superintendent of the Winona Schools; Frank A. Fritzpatrick, to Nebraska as Superintendent of the Omaha Schools; W. H. Rossiter, to Oregon as Principal of a Portland School; J. H. Hayes, to Colorado as Assistant Professor of Pedagogy in the State Normal School; Alexander S. Thompson, to the School of Music at Norfolk, Va.; H. M. Kingery, to Washburn College, Indiana; F. A. Cragin, to the University at Colorado Springs; H. M. Johnson, to Washington, D. C. The salary paid the first five in order are as follows: \$5,000, \$3,000, \$2,060, \$3,600, \$2,000. Several of these men have been prominently identified in Kansas school work for years.

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

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E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

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J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds. Watches, Clocks, a magnificent line of Jewelry of the best makes. A big variety of Notions that students need. Musical Instruments, Strings, Sheet Music, Instruction Books. An extensive stock of Spectacles in Gold, Nickel, Steel.—75.

MILLINERY.

THE BAZAR—Mrs. L. J. Bardwell carries a complete stock of Millinery Goods. Call on her when down town and learn the particulars about the large picture to be given away.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dongola shoes, \$2.00.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. SACHISON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

O. HUNTRESS, Dry Goods, Groceries, Queensware. Free delivery. Prices always as low as good business methods will warrant. The trade of Professors, Students, and all connected with the College especially solicited.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 7, 1891.

NUMBER 11.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

BOUND PERIODICALS IN OUR LIBRARY.

BY PROF. D. E. LANTZ.

IN the daily use of the Library by the students, no other class of books, except possibly the cyclopedias, are referred to so constantly as the bound magazines. Indeed, a single set of some of them, as the Forum, for instance, is found to be totally insufficient to supply the demand for them. The articles found in the magazines seem better suited to the ordinary reader than those found in treatises and cyclopedias. They are more popular in style and far less technical in treatment.

For some years past we have been making efforts, as our means would permit, to secure complete sets of the leading American and English magazines. These have been bought usually in parts, and afterwards bound. Some of the sets have been completed only after long and diligent search for missing and scarce numbers; and a few still lack some of these elusive desiderata. On the whole, we have been fairly successful, and at present these bound sets of periodicals form a most interesting and valuable part of our collection.

The greater part of them, especially those of a general character, may be found on the new shelving recently built in the small room adjoining the main book room. This room has been carpeted, and the door connecting it with the main library has been removed, thus making a quiet alcove well suited to study. Tables and comfortable chairs will be placed in it, so that the books of reference can be easily handled. With the additional room thus provided, we can manage for a year or two without a new library building.

The sets and the current volumes of the magazines are, as they are bound, indexed in our card catalogue. Poole's Index to Periodical Literature, with the first supplement and the annual volumes down to and including 1890, are in the library, and can be used with as great advantage as the card catalogue. The students readily learn to use them, and find them to be indispensable helps.

The following bound periodicals are now to be found on our shelves:—

Agricultural Science, complete.
American Art Printer, complete.
American Chemical Journal, from volume 9.
American Journal of Science and Art, lacks 8 volumes.
American Meteorological Journal, from volume 3.
American Naturalist, lacks parts of 4 volumes.
American Architect, from volume 19.
Art Journal, London, since 1884.
Atlantic Monthly, complete, 68 volumes.
American Garden, from volume 7.
American Florist, volume 1 to 5.
Auk, The, complete.
Belford's Magazine, volume 1 to 5.
Blackwood's Magazine, volume 1 to 81.
Botanical Gazette, complete.
Breeder's Gazette, from volume 7.
Canadian Entomologist, complete.
Carpentry and Building, from volume 8.
Century Magazine, complete.
Courier of Medicine, St. Louis, 7 volumes.
Country Gentleman, 24 volumes.
Critic, New York, new series, complete.
Christian Examiner, 20 volumes.
Edinburg Review, complete, 173 volumes.
Eclectic Magazine, 114 volumes, all except volumes 1 and 29.
Education, complete, 11 volumes.
Electrical Review, N. Y., from volume 6.
Engineering Magazine, (Van Nostrandi) complete, 35 volumes.
Entomologica Americana, complete.

Foreign Quarterly Review, 14 volumes.

Forum, The, complete.

Gillard's Medical Journal, 3 volumes.

Garden, The, London, complete, 39 volumes.

Gardener's Chronicle, complete, 57 volumes.

Gardener's Monthly, complete, 29 volumes.

Galaxy, Complete, 24 volumes.

Garden and Forest, complete, 3 volumes.

Good Housekeeping, complete, 12 volumes.

Gazette of the U. S. Patent Office, lacks a few numbers.

Harper's Magazine, complete, 80 volumes.

Harper's Weekly, since 1884.

Horticulturist, The, complete, 21 volumes.

Inland Architect, all but volumes 1—4.

Inland Printer, complete, 8 volumes.

Journal of the Chemical Society, London, 21 volumes.

Journal of Comparative Medicine, lacks volumes 1 and 6.

Journal of Military Service Institution, complete.

Journal of Mycology, complete.

Journal of American Chemical Society.

Kansas Farmer, nearly complete.

Kansas Magazine, complete, 4 volumes.

Literary World, Boston, all but volumes 1 and 2.

Litell's Living Age, 18 volumes.

London Quarterly Review, volumes 1—125.

London and Westminster Review, 19 volumes.

London Live Stock Journal, 7 volumes.

Library Journal, 4 volumes.

Magazine of American History, all but volume 1.

Massachusetts Magazine, 3 vols.

Microscope, The, 4 vols.

Nation, The, complete except 3 numbers.

Nature, complete, 43 volumes.

New York Review, 5 volumes.

North American Review, lacks 4 numbers.

Ohio Farmer, about half a set.

Orange Judd Farmer, 4 volumes.

Orchard and Garden, 6 volumes.

Popular Science Monthly, complete.

Popular Gardening, complete.

Paper and Press, 9 volumes.

Psyche, nearly complete.

Railroad and Engineering Journal, volume 61, and since.

Rural New Yorker, 10 volumes.

Science, complete, 16 volumes.

Science Gossip, 22 volumes.

Scientific American, 24 volumes.

Scientific American Supplement, 22 volumes.

Scribner's Magazine, complete.

Scribner's Monthly, complete.

Table Talk, all but volume 1.

Western Agriculturist, 5 volumes.

Western School Journal, 4 volumes.

Westminster Review, 18 volumes.

THE DUTY OF THE HOUR.

BY M. F. HULETT, '93.

THE young man of today reaches his majority in a time of much social and political agitation. Questions of vital importance to the nation's welfare stand out boldly before him, and a great endeavor is being made by the people to discover the financial and commercial policy necessary for the successful existence of a political sovereignty. Reform elements—true and so-called—are springing up on every hand and taking sides in the oncoming contest between right and wrong: the one in the interest of the masses, and the other for the accomplishment of some personal ambition, jealousy, or mercenary gain.

The questions raised are of the highest importance to a liberty-loving people, especially so to that element which is just entering upon the du-

ties of manhood, and on whose shoulders the responsibility of the nation's honor will soon rest. They must be amicably settled sooner or later in order to perpetuate the peace and prosperity of the country. But how can they be settled?

If there has been a growing discontent among the people on account of supposed unjust legislative action, it is meet that we, as young men, study the causes that tend to develop this feeling of discontent. The questions of the day should be thoroughly studied and analyzed until we are perfectly familiar with them on all sides. He who would be most worthy of citizenship must acquire that knowledge which enables him to distinguish between a right and a wrong system of government.

It is not enough that we depend for this knowledge upon the eloquence of the stump speaker, who makes his appearance on the approach of every political campaign; for it is a notable fact that many of this class are demagogues of the worst type, who go about from place to place advancing the interest of their party only so long as there is a pecuniary reward in their favor. He does not expect to influence those who are well informed on the questions of the day, but rather expects to draw support from the unfortunate ignorant. He has only one object in view,—success,—and the means of obtaining it are not generally looked upon from a moral standpoint.

It is against this element that an intelligent judgment should be balanced. The ignorant vote, in my opinion, is the direct cause of a large per cent of the troubles and distress of modern times.

In these days of advanced educational facilities, there is little excuse for a lack of knowledge of national affairs, and the individual who makes no effort to familiarize himself with them is unworthy of the rights of citizenship. He is a hindrance to good society, and a drone among the workers for social and political freedom.

To vote is a political privilege, and it is one that every man should exercise. The elective franchise has been granted him for his good, and to know how to use it to the best advantage for himself and his fellow-men, is the highest accomplishment one can acquire.

NOTES FROM THE KITCHEN LABORATORY.

BY LOTTIE J. SHORT, '91.

TO one familiar with kitchen work, the season of fruit-canning and fruit-preserving is an important event. This season, especially, has been both interesting and useful to us who have been making the many good things which our fruit-closet contains. We began six weeks ago Monday morning with a lecture on fruit-canning and fruit-preserving, and during that week put into practice the lecture just given.

You say you would like to know how those "good things" taste? Well, of course you would not be willing to let us tell you; so during the winter months, and towards their close, ask any member of the Faculty who has dined once a week off a part of it.

The second week we had a lecture on preserves, jellies, and jams, tracing their history from our New England grandmothers, who made their preserves "half and half," to the present day, when we Kansas girls have profited by their experience, and make them not so sweet. And now, as our six weeks have closed, we have cause to be proud of our work in that we honored the Regents with the first fruits of our labor by serving to them what they have not had at the College before—a breakfast.

In all our work in the kitchen, it was not the quantity of fruit we could put up in the time we had,—only two hours each day,—but the quality of work done. Just as much care was required in

putting up one glass of jelly as in putting up six glasses.

All told, we have put up in the past six weeks 100 quarts fruit, 24 gallons pickles, 30 bottles catsup and Chili sauce, and 40 glasses jelly.

The remainder of the term we are to devote to equally important subjects, the first being bread. On this we have two hours of lecture and eight hours of work in which to make and perfect rye, wheat, brown, corn, and graham bread; baking powder and soda biscuits; pop-overs, rye shells, waffles, griddle cakes, raised bread loaf, raised bread braided loaf, raised biscuits, Parker House rolls, "Sally Lunn," and bread cake. All these will be given in turn next term on Monday's dinner, and part of them on Friday's lunch, with coffee "like his mother used to make." When we shall have finished the work on bread, which will require two weeks, the important topic of meat will then take its place. To this subject we shall also devote two weeks, when we shall roast the juicy loin and broil the tender steak. In the meantime, we shall be making several great rich loaves of fruit cake for "Merry Christmas," or perhaps for other events, since one made last year kept till after Commencement. We shall also be cooking eight different varieties of experimental beans in almost as many experimental ways. These beans were grown on the College farm, some being recently imported from Japan. However, you will hear from these experiments later.

In our two weeks study of meats, we shall enjoy a visit to the market, where we shall see a beef cut up, of which we hope to name and place each of the different pieces. With this, and about two weeks for dainty side dishes and cakes, we shall have completed a term of thorough work—one to which we shall have given more careful thought than to any preceding one, and have gained knowledge which will help us to do better work in the winter term.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

We desire to extend our heart-felt thanks to the many friends who showed us such kindness during our sister's late illness at Manhattan, and we are happy to inform them of her steady improvement since she came away.

E. K. and ELMIRA MOODY.

Eudora, Kansas, Nov. 2, 1891.

THE WEATHER FOR OCTOBER.

BY PROF. E. R. NICHOLS.

The mean temperature for the month of October, 1891, was 53.16°, which was 1.08° below normal. There have been twenty warmer and twelve cooler Octobers in the last thirty-four years; the extremes being 60.93° in 1886, and 44.05° in 1869. The highest temperature for the month was 89°, on the 2nd; the lowest, 22°, on the 22nd, a range of 67°. The warmest day was the 2nd, the mean for the day being 79.5°; the coolest day was the 6th, the mean being 38.75°. The greatest range for one day was 49°, on the 25th; the least, 7°, on the 3rd. The mean temperature of the observations at 7 A. M. was 42.26°; at 2 P. M., 68.45°; at 9 P. M., 50.97°. The mean of the maximum thermometer was 71.03°; of the minimum, 39.39°, the mean of these two being 55.21°. There was hard frost on the mornings of the 4th, 5th, 6th, 7th, etc., and a heavy freeze on the mornings of the 7th and 22nd.

There were twenty-four cloudless days; one entirely cloudy, the first; three more than one-third cloudy, the 2nd, 6th, and 8th; three more than two-thirds cloudy, the 3rd, 5th, and 12th. The sky was clear continuously from the morning of the 13th to the 31st. The atmosphere was smoky on the 28th, 29th, and 30th.

The mean barometer for the month was 29.033 inches, which was .23 inch above normal. The mean at 7 A. M. was 29.054 inches; at 2 P. M., 29.009 inches; at 9 P. M., 29.035 inches. The maximum was 29.442 inches, at 7 A. M. on the 27th; the minimum, 28.66 inches at 2 P. M. on the 16th, —a monthly range of .782 inch.

The rain-fall was 2.446 inches, falling on the 1st, 3rd, 5th-6th, and 12th. This is .11 inch above normal. The highest rain-fall for October was 9.07 inches, in 1877; the lowest, .22 inch, in 1874. The soil was in good condition for plowing after the 3rd till the last week, when the ground became quite dry again.

The wind was from the southwest twenty-seven times; north, twenty-three times; south, eighteen times; northwest, fourteen times; west, six times; northeast, three times; east, once; southeast, once. The total run of wind for the month was 6919 miles, a mean daily velocity of 223.19 miles, and a mean hourly velocity of 9.3 miles. The highest daily velocity was 560 miles, on the 29th; the lowest, 75 miles, on the 9th. The highest hourly velocity was 30 miles, between three and four o'clock on the afternoon of the 16th, and between ten and eleven on the morning of the 29th.

The table below gives a comparison with the preceding Octobers:—

	Number of rains.	Rain in inches.	Mean Temperature.	Maximum Thermometer.	Minimum Thermometer.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
September.								
1858	6	5.67	56.38	82	30	28.8	29.20	28.50
1859	2	0.64	53.37	84	20	28.8	29.20	28.50
1860	1	0.42	50.31	91	20	28.8	29.20	28.50
1861	6	2.12	55.67	84	16	28.8	29.20	28.50
1862	5	1.62	55.93	91	11	28.8	29.20	28.50
1863	3	2.40	47.80	73	25	28.8	29.20	28.50
1864	4	0.63	45.92	73	25	28.8	29.20	28.50
1865	3	0.43	57.53	88	30	28.8	29.20	28.50
1866	3	0.01	50.31	92	20	28.8	29.20	28.50
1867	5	2.51	52.43	79	32	28.8	29.20	28.50
1868	0	0.43	44.05	79	30	28.8	29.20	28.50
1869	2	5.00	50.05	75	31	28.8	29.20	28.50
1870	9	1.20	55.81	91	31	28.8	29.20	28.50
1871	6	2.76	51.98	91	27	28.8	29.20	28.50
1872	5	2.02	51.23	84	14	28.8	29.20	28.50
1873	2	0.42	50.15	84	15	28.8	29.20	28.50
1874	3	0.22	50.15	84	15	28.8	29.20	28.50
1875	3	1.04	53.04	81	21	28.8	29.20	28.50
1876	3	1.61	53.58	80	28	28.8	29.20	28.50
1877	8	9.07	53.18	80	28	28.8	29.20	28.50
1878	4	1.09	54.07	86	24	28.8	29.20	28.50
1879	4	2.63	50.84	86	24	28.8	29.20	28.50
1880	6	2.20	52.10	81	23	28.8	29.20	28.50
1881	8	4.27	56.51	83	32	28.8	29.20	28.50
1882	4	3.54	57.71	87	31	28.8	29.20	28.50
1883	12	7.05	51.45	87	31	28.8	29.20	28.50
1884	6	2.22	60.06	87	33	28.8	29.20	28.50
1885	4	1.72	50.03	80	20	28.8	29.20	28.50
1886	2	2.42	60.03	91	25	29.00	29.54	28.52
1887	2	2.20	51.00	92	16	29.00	29.54	28.52
1888	4	2.71	52.11	82	23	28.90	29.16	28.55
1889	3	1.42	52.21	96	20	29.12	29.40	28.76
1890	4	1.90	53.33	86	23	28.87	29.29	28.50
1891	4	2.45	53.16	80	22	29.03	29.44	28.66
Sums	149	77.12	1790.92	2839	821	576.02	583.47	567.24
Means	4.52	2.34	54.24	86	24.88	28.80	29.17	28.36

WIND RECORD.

	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
October.						
1889	4854	156.59	349	83	6.53	26
1890	7008	226.06	460	48	9.42	34
1891	6919	223.19	560	75	9.30	30

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Prof. Brown voted in Leavenworth.

Mrs. Martin, of Harveyville, is visiting her son and daughter in College this week.

Mr. J. Q. Myers, of Holton, spent a few hours at the College visiting his son, in First-year studies.

Mr. and Mrs. Kennett, of Silver Lake, visited their daughter Maud in College yesterday, returning home today.

Faces long and short show the various political proclivities of students since election. A few students went home to vote.

The old blacksmith shop will be converted into a foundry building, and is now being moved to a position in the rear of the new iron-shop.

Mrs. Kedzie attends the meeting of the Woman's Social Science Club at Hutchinson this week, as the Chairman of the Committee on Natural Science.

Prof. Olin won new honors as "Uncle Reuben," the "leading man" in "Aunt Dinah's Husking Bee," held in the Eames building last evening by the Congregational Society.

Miss Mary E. Francis of Oakland, California, who has been a visitor in the President's family for the past few weeks, began her journey homeward on Thursday afternoon.

Representative Soupene of Pottawatomie county, accompanied by his family and several ladies whose names the writer cannot recall, spent several hours at the College Wednesday afternoon.

Capt. and Mrs. Bolton and Miss Bolton visited Fort Riley Thursday evening as guests at the marriage of Miss Bessy Forsythe, daughter of Col. Forsythe, commanding Seventh Cavalry, to Surgeon Bache, U. S. A.

The College Y. W. C. A. will in future hold their weekly meetings in Horticultural Hall on Sunday afternoon at 4:15 P. M. This hour is chosen that the members of the Association may more conveniently attend, the meeting of the Y. M. C. A. being at 3 P. M.

The October number of *Insect Life*, a periodical issued by the Division of Entomology, U. S. Department of Agriculture, contains an abstract of Prof. Popenoe's paper on the recent outbreak of locusts in Colorado.

Whereas, our commander, Lieut. E. B. Bolton, has received the commission of captaincy, be it

Resolved, that we, the officers of the Battalion of Cadets of the Kansas State Agricultural College, do hereby offer him our hearty congratulations.

THE OFFICERS.

Prof. E. B. Cowgill, for several years a member of our College Faculty, has purchased an interest in the *Kansas Farmer*, and will hereafter, as Vice President of the company and one of the editorial staff, give his influence and experience to the *Farmer*. We congratulate the *Farmer*, Mr. Cowgill, and subscribers on the new combination.

A letter from Miss Mary Swaney to one of our graduates who thought of securing employment as a teacher in the Argentine Republic says: "The salaries are paid in paper, and one hundred dollars in paper is worth less than twenty-five in gold. The financial condition of the Republic is growing worse and worse. The good times for American teachers are past."

Notice of the Fourth-year speakers in Chapel a week ago was omitted in the next day's INDUSTRIALIST. Those in the division were Grace Clark, subject, "Whittier;" J. Frost, "Indifference;" L. S. Harner, "Our Standard of Excellence;" Effie Gilstrap, "Kansas Poetry;" C. P. Hartley, "Comprehensive Education;" J. N.

Harner, "Our Opportunities;" J. W. Hartley, "Farming as an Occupation;" Ava Hamill, "Gettysburg and Lincoln."

The third division of the Third-year Class delivered declamations in Chapel yesterday afternoon as follows: J. W. Brooks, "Influence of American Liberty;" M. V. Hester, "Patience;" Margaretha E. Horn, "The American Sphinx;" A. S. Houghton, "The Rights of Privacy;" M. F. Hulett, "American Literature;" Onie Hulett, "Self-Help;" Fred Hulse, "Give Your Inmost Self;" C. R. Hutchings, "The Organization of Public Intellect."

A recent number of the *Queenslander* of Brisbane, Queensland, Australia, contains a report of an agricultural conference to the promotion of which great credit is given Prof. Shelton. The *Queenslander* says the success of the conference "has been largely due to Prof. Shelton, who, since his Queensland advent has certainly proved himself the farmer's friend." In an account of "Women's Industries at the Exhibition," the same paper makes mention of Mrs. Shelton in the following paragraph: "Mrs. Shelton's collection of Queensland-grown fruits preserved in syrup was one of the gems of the industrial portion of the Exhibition. The fruits had retained both shape and color in a marvelous degree, and the syrup in which they were enshrined was as clear as crystal. 'What woman has done woman can do,' and it is to be hoped that Mrs. Shelton's achievement may lead to wide and energetic rivalry in 1892."

SOME STUDENT STATISTICS.

Exclusive of post-graduate students there have been enrolled, thus far in the term, a total of 478 students. Of these, 189 are here for the first time, and represent the following 45 Kansas counties and 8 other States:—

Anderson 1, Barton 1, Chase 1, Chautauqua 1, Cherokee 2, Clay 7, Cloud 1, Coffee 2, Geary 2, Douglas 1, Elk 1, Greenwood 3, Jackson 4, Jefferson 4, Johnson 5, Kiowa 1, Labette 1, Leavenworth 1, Linn 1, Lyon 1, McPherson 4, Marshall 5, Meade 1, Mitchell 1, Morris 1, Nemaha 5, Neosho 1, Osage 14, Osborne 4, Ottawa 2, Pottawatomie 11, Rawlins 1, Rice 2, Riley 40, Russell 4, Saline 1, Sedgwick 4, Shawnee 16, Smith 1, Thomas 2, Trego 1, Wabaunsee 7, Washington 4, Wilson 2, Woodson 3, Colorado 1, Illinois 2, Indian Territory 1, Missouri 2, Nebraska 2, New Mexico 1, Ohio 1, Texas 1.

Ninety-one of these new students were born in Kansas, 10 in Indiana, 12 in Missouri, 14 in Iowa, 14 in Ohio, 17 in Illinois, 7 in Pennsylvania, 3 in Wisconsin, 2 in New York, 3 in Nebraska, 3 in Tennessee, and one each in England, Denmark, Canada, Colorado, Maryland, Kentucky, Michigan, West Virginia, Maine, Indian Territory, California, New Hampshire, and Virginia. In naming the kind of school last attended before entering College, 97 report from the district schools, 72 from city and town schools, 12 from other colleges, 5 from academies, and 3 from private schools.

One hundred three of these new students were admitted to College on examination, 4 upon standing obtained in other colleges and academies, 34 upon county diplomas, 24 upon teachers' certificates, 21 upon certificates of passing the grammar grade in approved city schools, and 4 upon grades obtained elsewhere.

In regard to the length of their proposed course of study, 117 plan a full course of four years, and 72 a shorter one.

Eighty-nine of these students are dependent in whole or in part upon their own exertions for financial support while in college, while 100 are dependent upon parents or friends.

In answer to the question, "In what business do you propose to engage after leaving college?" the following replies were made:—

Architect 1, army 1, banker 2, carpenter and cabinet-maker 3, "cemetery" 1, civil engineer 5, farmer and stock-raiser 25, "general" 2, journalist 1, lawyer 1, machinist 3, miller 1, minister 2, mechanic 4, merchant 3, music teacher 1, physician 1, printer 8, sewing 4, stenographer 1, teacher 17, telegrapher 3, wagon-maker 1, undecided 88.

For parents' business the following answers were given: Army officer 1, banker 1, boarding house-keeper 2, book-keeper 1, blacksmith 1, carpenter 6, clerk 1, dressmaker 1, druggist 2, farmer 130, laborer 3, locomotive engineer 1, lawyer 3, land agent 1, mason 1, minister 3,

machinist 2, merchant 13, miller 1, nurseryman 2, not given 2, official U. S. 2, physician 3, railroad officer 1, teacher 1, wagon-maker 1.

These statements show that nearly one half of our new students were born in Kansas; more than fifty per cent of them come to college direct from the district schools of the State; nearly fifty per cent are wholly or partially self supporting, and nearly seventy per cent of them come direct from the farm.

GRADUATES AND STUDENTS.

D. E. Bundy, '89, is occasionally heard from as a successful farmer near Blue Rapids.

Fred G. Shaw, First-year in 1890-91, teaches the home school at Portis, Osborne County, this year.

H. M. Culter, student in 1879, is now taking a professional teacher's course at the State Normal School.

Ettie Griffin, First-year in the spring term of last year, writes of successful work in her school near Junction City.

Maud Sayers, '89, presents a paper before the Woman's Social Science Club at Hutchinson this week. The subject is "Hidden Danger in Food."

Archie Campbell, Second-year in 1890-91, visited the College last week in the uniform of the Washburn College Cadets of which he is a Lieutenant.

F. W. Ayers, student of last year, visited the College on Wednesday. He expects to spend a few months at the State Normal School, his home being at Emporia.

D. R. Jenkins, Second-year in 1882-3, visited the College on Tuesday, to find very few who knew him here. He is running a newspaper, the *Enterprise*, at Coal Creek, Colorado.

The address before the Educational Association last night by Sam Kimble ['73] on the subject of "Weeds" was a fine effort. Mr. Kimble merits the thanks of the teachers for the treat.—*Manhattan Nationalist*.

J. E. Brady, Second-year in 1883, has finally settled down into a staid benedict. The cards are out announcing his recent marriage in Fort Leavenworth. Mr. Brady now writes U. S. A. after his name, and has his headquarters with his regiment at Fort Clark, Texas.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Y. M. C. A.—President, J. L. McDowell; Vice-President, J. B. Thoburn; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society—President, A. D. Rice; Vice-President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, L. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society—President, J. N. Harner; Vice-President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulett; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsman, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

Oct. 30 h

The Scientific Club was called to order by Pres. Graham, and being the first meeting, Miss Short was called upon to act as Secretary. After a few preliminary remarks by the President, a motion was made to have a committee of three act as a Nominating Committee. Moved that Mrs. Kedzie, Prof. Hood, and F. A. Marlatt serve as that Committee.

Prof. Nichols was called upon for a short talk on Polarization of Light. He spoke of hypothetical ether which pervades all space and in which waves of light are propagated, these waves being transverse to the line of propagation; of the two substances which perfectly polarize light by reflection: glass at fifty-four degrees, thirty-five minutes, and water at fifty-two degrees, forty-five minutes; also the only way to tell how light had been polarized is by the analyzer. The subject was then discussed by several members of the Club. We were then entertained by Mrs. Kedzie, who told us of some trees which she saw while in California, among which was the *M. nzinita* found on the foothills. The Indians grind up the berry of this tree, producing flour from which they make cakes. Another tree was the *Sequoia sempervirens* which furnishes us the redwood for our furniture. This grows in forests and is the valuable lumber of the western coast. *Sequoia gigantea* is another "redwood," never growing entirely alone—but usually with the sugar pine, which produces the enormous pine shown to the Club. The *Sequoia gigantea* trees grow to great heights and the largest one, The Grizzly Giant, is 33 feet in diameter. They are found only between 800 and 7000 feet. Some of these trees are greatly injured by fire and on these may be seen the bark which is sometimes three feet thick. At present, these trees are guarded from fire and tourists' hatchets, so that coming generations may wonder and marvel upon them. This subject was also open for discussion and a great many interesting questions were asked about the trees.

Mr. Mason's paper on "The *Paulerinia*" (*Paulerinia imperia-*

his) followed: "A small tree on the north side of the main College driveway has often been noticed and commented upon for the extraordinary size of its leaves. Usually it is mistaken for some variety of catalpa, and the resemblance, both in foliage and general habit, is a striking one. This is a Paulownia, a tree said to have been introduced into Europe from Japan by Dr. Von Sieboldt about 1843. Specimens must have been brought to the United States very soon after, for in 1847 the flowering of a specimen is described by Mr. S. B. Parsons, of Flushing, L. I., in the July number of the Horticulturist, and this was said by the editor, A. J. Downing, to be the first specimen to flower in this country. Two more are mentioned as blooming in other parts of the country in 1849. The tree belongs to the order Scrophulariaceae, the same which furnishes the genus Mimulus, or Monkey-flowers. Our specimen was planted about 1884 or 1885 and up to 1888 was out back each year to the ground and grown only for the succulent sprouts with enormous leaves which it sent out during the season.

"In the summer of '88 one sprout from this root grew to be nine feet high and about two and a half inches in diameter. Some of the leaves were nearly two feet broad. In the fall this was cut back to six feet and wrapped up thickly with hay. The winter being a mild one it came through in good shape and by the next fall measured four inches in diameter and had made a top growth of seven feet. At present the tree measures twenty-eight inches in circumference at the ground, and twenty-one inches at three feet high. It is about eighteen feet tall, and spreads about sixteen feet. This is a four year's growth which it would be hard to find equaled by any of our native trees.

"During last August the tree formed its first crop of flower buds. These are in clusters on the ends of the branches. The buds are much the size and shape of an ox-heart cherry, and have the appearance of being made of very thick, soft buckskin, so snugly are the embryo blossoms protected from frost by the thick calyx lobes. In spite of this care it is very doubtful whether these buds survive our winters and give to Kansas the opportunity to see these rare and beautiful flowers.

"As these trees are readily propagated by root cuttings, an effort will be made this winter to secure a lot of young plants by this means."

Mr. Mason being detained at home by sickness, his paper was read by Mr. Marlatt, and it also was discussed by several members of the club.

The Nominating Committee made their report, and the following persons were elected: S. O. Mason, President; J. T. Willard, Vice-President; Lottie J. Short, Secretary; F. A. Marlatt, Treasurer. Adjournment. LOTTIE SHORT, Sec'y.

October 31st.

The Hamiltons came to order at the request of President Rice. After roll call, Mr. Laundry led the society in devotion. The initiation of the following members—V. Emerick, J. H. Rhodes, F. Brandt, A. D. Benson, A. L. Frowe, C. J. Berglund, W. E. Hardy, J. A. Rich, C. W. Lyman, G. H. Deal, and C. D. Lesley, swelled the ranks of the Hamiltons to seventy-eight able-minded men. Wm. Joss opened the programme. His declamation showed the result of well-directed labors, and, of course, was well delivered. In his essay, Mr. Evans gave a very vivid description of a mining shaft. The question for debate was, Resolved, "That the next political party in power should adopt a system of ballot reform." The affirmative speakers were I. B. Parker and W. J. Jennings; negative, C. P. Hartley and C. D. Fay. The affirmative opened the question by stating that the object of an election was to determine the will of the electors. Each elector has a right to ballot whether he is right or wrong in the views he holds. And any interference with his ballot is a violation of the United States constitution. The Australian system of ballot, or the Blanket system, would be a good substitute for ours, as either is more perfect than the system in use. The 14th amendment says that the state shall not abridge the franchise privilege. But the present system of ballot makes it possible for the state of Mississippi to bar out the votes of a large number of citizens both white and black. Every citizen to-day has a right to express his views, but nevertheless the anti prohibitionists in a recent election in Omaha prevented some of the citizens from expressing their views by voting. And in Mississippi a voter cannot exercise his right of franchise with safety. In many cases the minority hold down some of the majority and defeat the rest. There should be a reform, as there are too many ways of defrauding under the present system. This reform cannot be made unless it is done by the party in power. The negative agreed that there should be a ballot reform, but though it unnecessary to wait until another party came into power. It would be better to adopt it now and use it at the next election. The constitution would have to be amended, and that could not be done by a political party. Fourteen states have adopted systems of ballot reform during the present year, and twenty-nine states have reformed their methods of ballot in the last four years. It would not do for the next party in power to change the method of ballot, as they would change it in their favor. The present method of balloting is not so bad as is supposed, the parties exaggerate the acts of each other in regard to balloting. A vote of the society decided the debate in favor of the affirmative. The society adjourned for ten minutes recess, after which Mr. Wilden continued the program with the Recorder. The editorials expressed some very good sentiments. The titles of some of the pieces were as follows: "A word to new members," "Kansas Song" (poem), "The Third Year Class Analyzed before the Blow-pipe," "The Lay of the Burn" (poem), "Our Industrialists," "Where do we get our Orator?" "Let us grasp an Opportunity," "Digging Potatoes," "The Typical Webster," "Report from the Cal Pen" (poem). A novel feature of the Recorder was a single stanza of poetry by each of a number of members. Mr. Wallis' oration, "The Waste of Energy" was well written and had a great deal of energy thrown into its delivery. "Uncle Dan's Application for Prayer" read by Mr. Simmons, was highly appreciated by the society. Miss Gilstrap was tendered a vote of thanks by the society for the use of her organ. T. E. Lyon rendered a couple of pieces of music on the guitar that were well received by the society. Fifteen minutes were spent on extemporaneous discussing "The Girls should have a gymnasium at the K. S. A. C." W. J. Y.

October 30th.

At the usual hour the Alpha Beta Society was called to order by President Harner. Music was rendered by Messrs. E. J. and C. E. Abell, and Misses Inez and Elva Palmer, Mr. Mercer at the organ. The Society was led in devotion by C. H. Thompson. The Secretary called the roll, showing a good attendance of the members, after which Selma Lund and Smith Norton were initiated. Sarah Cottrell gave a recitation on "Promptness." The question, "Resolved, that more is learned by travel than by study" was debated by Fessie Stearns assisted by Mr. Morgan, on the affirmative, and Faisy Strong assisted by Mr. Mercer, on the negative. Both sides produced good arguments; but the judges, Messrs. Lyon, Abell, and Clothier, decided two to one in favor of the affirmative. The Gleaner was presented by Onie Hulett. After recess the Society was entertained by a solo and chorus, "Little Maggie May," by E. J. Abell, assisted by G. L. Clothier, C. E. Abell, and G. W. Fryhofer. E. E. Thackrey presented the news of the week. Twenty minutes extemporaneous speaking, in which all took part. O. H.

October 30th.

Shortly after chapel exercises those who had assembled in Ionian Hall, both visitors and members, were called to order by Pres. Gilstrap. After the opening exercises, the programme which should have been presented last week, but which had been postponed, was opened by Ione Dewey and Jessie Hunter with a very pleasing mandolin and guitar duet. One of the most pleasant features of the programme is the music furnished by the young ladies who play stringed instruments. Fannie Cress' essay, "Three Blind Mice," was bright and interesting. Hannah Weitzig then favored the Society with a declamation. Florence Corbett, editor of the Oracle, read a very interesting number. In it appeared the second chapter of the continued story. A vocal solo by Mary Lyman followed the paper. The debate, "Resolved, That our annual exhibitions are beneficial," was opened on the affirmative by Nora Newell. She attached great importance to the question and thought the future welfare of the Society depended upon its being settled. She argued that much instruction is gained by the preparation which is necessary to make an annual success; it aids in developing the managing faculties; and again, it increases one's confidence when appearing before the public. Much enjoyment is derived from the exhibitions. Laura Day next argued the negative. Her argument was that poor grades are the inevitable result, not only at the time, but for some time before

and after. The over-work, and inability to do one's self justice when the time must be divided among so many studies, must be considered. Another reason it is not beneficial is the strife which it causes in the Society, and also among members of different Societies. Verta Cress on the affirmative thought that as woman is coming to the front in other matters, this should be no exception. It gives us an opportunity to show our friends the work which the Society is doing. Ida Staver continued the negative by speaking of the expense always produced by an exhibition. She also spoke of the relaxing of effort in Society work before and after an annual. Miss Newell in closing refuted several of the arguments of her opponents, and stated that no Ionian should feel injured if her name did not appear upon the programme, for "Every true Ionian should love her Society as herself." Miss Day, in closing, said that if the exhibitions were beneficial the custom would be adopted by the literary societies of other institutions. The judges, Misses Abbot, Vail, and Wells, decided two to one in favor of the negative. Ione Dewey entertained the Society with instrumental music, and, after the reports of committees and critic, the Society adjourned. L. G. D.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

From the report by the Superintendent of McPherson county we glean the following interesting statistical notes: Last year there were 7677 persons of school age in this county; this year there are 7608, a loss of 69. The average salary paid male teachers last year was \$44.84; this year it is \$42.12. Female teachers received \$38.88, and receive now \$38.94. There are 13 school district treasurers in the county who have advanced money to their districts out of their own pockets during the present year. The October meeting of the McPherson county teachers recorded an attendance of 110. The outlook for the coming school year is very favorable.

The pride with which Sterling citizens regard their college is pardonable. It is an institution of which any town might be justly proud. The building is solid and handsome, the faculty is vigorous, and the church which is endowing the college has worked hard toward making it conform with the ideal of the founder. October 7th was the fifth anniversary of the acceptance, on the part of the Synod of Kansas of the U. P. Church, of the proposition of the Sterling Land & Investment Co. to donate the site and building, providing the Synod would endow the institution. Five years was the time the Synod asked in which to raise the \$25,000 endowment, and this period expired on the above date. The money was raised, and, to celebrate the occasion in a suitable manner, a jubilee was arranged. The deed to the property was formally transferred from the Investment Company to the trustees of the college and congratulatory addresses were delivered. It was red-letter day in Rice County.

SIDE SHOWS ON THE FARM.

Profitable farming may be compared to a circus. There is the big tent, admission 50 cents, and a half-dozen side shows, 10 cents each. So on the farm. We have our principal crops of corn, wheat, hay, cattle, or whatever else they may be. And then we have, or ought to have, our side shows; and on these side shows, says P. B. C., of Cantonsville, Md., in the *Rural New Yorker*, depends very largely the success of the farm; for, while the principal crops pay the expenses, the side shows determine, in a great measure, the extent of the surplus, which, as we all know, is a very important question. A question that should, therefore, secure careful consideration is how to manage the side shows.

The first side show that the farmer generally has is the cow, and she is a good one, too. Do you sell butter or milk? If not, calculate how much ten pounds of butter a week at twenty or twenty-five or even thirty cents a pound will amount to in the course of a year; then subtract what it will cost to keep two (for two cows will yield that quantity of butter) cows for one year; and then see if you don't regard the cow as a first-class side show. But just here I would like to give an example in arithmetic, which is founded on personal experience.

If one cow will make a profit of \$50 a year, ten cows will not make a profit of \$500 a year, and, in spite of the fact that figures do not lie, I think the reason will be obvious after a little reflection. One or two cows can be attended by yourself or your hired man without any extra expense. Of course, it takes time, but you will probably get up a little earlier in the morning to milk them, and the cost of labor is not felt.

Here lies the secret of the success of the side show. One should have a side show just large enough to be managed without much, if any, extra expense, and such as will suit his method of farming. If it is a dairy farm there will be plenty of manure, and also extra labor. These two can be worked in very nicely on a crop of potatoes or cab-

bages, but one shouldn't plant so large a crop that the cows will be neglected while he is caring for his cabbages. One other point—study your locality and give it what it wants; the circus does not show seals to the Esquimaux or turnips to the farmer; and in the same way study your local price list, and if potatoes are 15 cents a bushel don't grow them, but grow something that your locality will pay a higher price for; and after having carefully considered what and how many side shows you should have, see if they don't help to swell the surplus.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 14, 1891.

NUMBER 12.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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THE VOLTMETER.

BY PROF. E. R. NICHOLS.

THIS instrument, as its name indicates, is used to measure volts, the practical unit of electromotive force. The volt is equal to one hundred million absolute units of electromotive force. The term absolute is applied to those units that are based upon the centimeter as the unit of length, the gramme as the unit of mass, and the second as the unit of time.

There is probably no subject more confusing to the student of electricity than the difference between current and electromotive force. The word fluid was probably introduced into the subject from a supposed analogy of the action of electricity to that of a fluid, and not intended to imply that electricity is really a fluid. Indeed, from our present state of knowledge, the phenomena which are classed under the name of electricity are very probably a peculiar motion of the ultimate particles of matter called atoms. What the nature of this motion is, whether rotary, vibratory, or undulatory, science is as yet unable to determine.

There are a number of ways of producing this motion in various substances, such as friction, chemical action, heat,—a mode of motion,—light—also a mode of motion,—and motion of a conductor in a magnetic field. This latter perhaps ought to be omitted, as magnetism is but a manifestation of electricity. Whichever means is selected as a source of electricity, it will be found that, other things remaining the same, an increase in the means used will produce an increase in the effect. These means set up an electrical condition, that is, an electromotive force. This force is capable of sending a quantity of electricity—that is, current—through a circuit, the amount of which will depend upon the resistance of the circuit. The relation that must exist between the electromotive force (E), the current (C), and the resistance (R), according to Ohm's law, is C equals E divided by R, which may also be written, C times R equals E, or R equals E divided by C. Expressing this law in practical units, it becomes, amperes equal volts divided by ohms.

A current of electricity may be compared to the conduction of heat in a metallic rod. If one end of a rod be placed in a fire, the other end becomes heated, not by the passage of something material from the heated end to the other, but by increased motion of the molecules or atoms at the heated end, which is gradually communicated to the adjacent molecules, till the motion finally reaches the farther end, and we have a condition recognized as heat. The intensity of the heat would depend upon the intensity of the source, while the amount of heat would depend upon the size of the rod and its conductivity, or resistance. In an electrical current, that which produces the effect, whether the effect be mechanical, chemical, luminous, calorific, magnetic, or physiological, is the quantity of current which flows. Thus, there may be an ampere of current flowing through a circuit of a total resistance of five ohms, due to an electromotive force of five volts, or an ampere flowing through a total resistance of one thousand ohms, due to one thousand volts. If these circuits contain a galvanometer or an electrolyte, there would be the same deflection of the needle in each, or the same amount of the compound decomposed.

Since electricity is known only by its effects, it is evident we can measure it only by measuring its effects. This method of measuring is not uncommon. We measure the power of a horse, not by weighing him or taking his dimensions, but by the work he does. Any of the effects may be measured, but as a matter of convenience the magnetic effect is usually preferred.

From the preceding paragraph, it will be seen that we cannot measure directly the electromotive force, since it produces no direct effect. By referring again to Ohm's law, it will be seen that the electromotive force varies directly as the current. Suppose that with a battery arranged to give a known electromotive force of five volts working through a total resistance of 5 ohms, we get a current of one ampere, which would be the case according to Ohm's law, and that this current is arranged to produce a certain deflection of a magnetic needle. Now suppose an unknown electromotive force, working through the same resistance, produces a deflection of the needle equal to eight amperes. What would the electromotive force be? Forty volts, since $E = (C \times R) = (8 \times 5) = 40$. It is evident that in the simple galvanometer, or ampere meter, supposed, if we change the one to read five, the two to ten, etc., the ampere meter becomes a voltmeter. Indeed, all ampere meters could be used as voltmeters if the total resistance of the circuit were known by a simple calculation from Ohm's law.

CULTURE OF THE OBSERVING FACULTIES.

BY BIRDIE SECREST, '92.

AS a natural gift or talent, the power of critical observation is rare. "The observer," as John Stuart Mill has said, "is not the one that merely sees the thing, but also the parts of which it is composed."

What we obtain by reading is little compared with that gained by actual practice. Reading supplies us with others' observations, which are useless to us unless seen under like conditions. Imagine, if you can, if you haven't seen or experienced it, the success of the young, inexperienced house-wife, making a cake, with only the knowledge of the mere recipe. How that expression of discontent reigns supreme in the kitchen, over a face robed in a veil of tears, all for the "mere nothing" which she takes from the oven.

If a boy wishes to become a farmer, it would be well for him to read about the growth of the seed, the cultivation of the soil, and the uses of the implements employed. But he will learn the use of these implements only by using them; the growth of seeds, only by growing them. Science, if rightly treated, furnishes us with the simplest examples for the culture of the observing faculties. Many a mind withers away when fed with a science in words, but when brought to study the phenomena of the world, it is aroused to activity. When we observe the form and position, as well as the various parts of plants, botany becomes more than a science of mere names, as it was formerly called.

Great things have been accomplished through the careful observation of little things. The prophets of both the Old and New Testaments not only place man at the head of creation, but predict the time when he shall be able to restrain, to control, and to direct the forces of nature to his own use. Consider for a moment what observation has brought about in using heat, through steam, in operating complicated machinery in many processes of manufacture, and in locomotion, transporting with great rapidity the heaviest freight. Consider what intelligent observation is now doing in applying force from heat, through electricity, transmitting thought at the inconceivable rate of 8,000 miles in about one second, and lighting our streets and our houses, as well as operating machinery and moving carriages through the streets of our cities with safety and great rapidity.

It has not been many years since Byron informed us that man's control must stop with ocean's

shore, but we have bridged both the Atlantic and the Pacific, crossing both in less than six and ten days. We have often been told that man must stop when he comes to the weather, but now it is an interesting question whether or not man can control the clouds, the thunder, the wind, the rain, and the snow. It has been the subject of observation, almost since the invention of gun-powder, that long-protracted battles are almost invariably followed by rain. Whether the scientists now considering these observations will so use the laws of nature as to cause rain when suffering crops need it, we shall undoubtedly find out in the near future. If they succeed, it will be by observation; and if they fail, a lack of careful observation will account for the faults in their theory.

Our scientific studies train in observation along the line of just such facts as a growing civilization needs, and such culture of observing faculties gives the true power for good.

SCIENCE AS AN AID TO AGRICULTURE.

BY R. L. WALLIS, '92.

THE time was, and not so very long ago, when any reference to science in connection with agriculture was apt to be received by the average farmer with a smile of derision. He failed to understand its importance as a means of aiding him in his every-day affairs, and in meeting unforeseen circumstances, so he considered it of little consequence in his practical pursuits. Now we find the majority of farmers anxiously looking to science for aid in carrying on their work, and ready to take hold and act upon any new truth or law that may be discovered or suggestion that may be offered.

From research and investigation in the various branches of science, the different compositions of soils have become known, and the manner in which they shall be treated so as to secure the largest returns for the least expenditure of time and labor. Again, science aids the farmer in finding uses for the various products, and hence a means of disposing of them to the best advantage.

From the study of science is gained a knowledge of plants and animal life—their structure, organization, and the proportion of the various elements that enter into their composition. By this means the farmer is enabled to judge of the needs of plants and animals and the quantity and best proportion of the different food products that will secure the greatest growth and development with the least waste.

From investigations in pathological science, important results have been obtained, which are of great value to the farmer in preventing and curing disease. Even the knowledge that a disease is incurable is of some value, as it will often save time and money that would otherwise be spent in seeking a cure. The comparative impunity gained on the farm from certain diseases, as pleuro-pneumonia, formerly so destructive, often resulting in losses that amounted to thousands of dollars, has come only through science in a vigorous study and investigation into the cause and nature of the disease.

Last but not least of the contributions which science has made to agriculture is the multitude of inventions which have materialized into machines for labor saving and economy. These aids, as well as others, the farmer comes to look upon as essential to his business, and from scientific laws learns how to judiciously use and care for his machinery so as to get the highest returns possible for his capital invested.

These are only a few of the many important aids which the farmer has received from research in the different branches of science. Yet they serve to show that agriculture is largely indebted to science for having kept pace with other pursuits of man as a useful and important occupation.

SEWING AND COOKING IN OUR PUBLIC SCHOOLS.

BY MRS. N. S. KEDZIE.

NEARLY every one in this country now speaks in favor of industrial education. Whether it is destined to come into all kinds of schools, and to dominate the training of all young people, remains to be told by coming years. It is surely true that industrial training has come to stay, and today the man or woman whose fingers can keep pace with the brain that guides them is the man or woman sought for in all kinds of work, in all circles of life.

It is a mooted question whether it is wise to bring hand-work into what we generally term education before a broad foundation of actual brain study has been secured. The advocates of kindergarten work claim that the two kinds of work, of brain and of hand, must go together from the first years of child study; while other wise educators think that the constant amusement—the changes of work and the mild excitement consequent upon kindergarten work—prevents a child from learning to study and robs him of the years when he should be forming habits of thoughtful application to whatever subject is under consideration.

If every one could spend the time until the age of twenty-five in preparation for life work, some definite rule might be made, but many young people must carry the burden of self-support almost from the cradle, and there are more people between the ages of sixteen and twenty-five who shoulder the responsibility of a life work than there are who call their time their own, so far as educating themselves is concerned.

For the sake, then, of the many who have but a few years for study, it seems that a judicious mingling of handwork with mental attainment will give the greatest good to the greatest number.

The bringing of sewing and cooking into the public schools will give to every girl some definite ideas as to practical methods. It is not probable that many school girls would become proficient seamstresses or accomplished cooks in the short time allotted to this work.

There are very few classes of any kind found in which all members are counted as even good students, but as our laws are so constructed that all children are supposed to attend school, so all women who come to the care of a household would have heard many principles and facts which will be, in their way, helps toward making better homes, and thus giving us a people who shall be stronger mentally, because they are given the better bringing up that always comes with improvement in homes.

Even though something must be cut out of public school work in order not to increase the cry that the children are overcrowded already, the addition of sewing and cooking to the duties of girls can be productive of nothing but good. No woman can live her life satisfactorily without some knowledge of these two great essentials.

No matter what her life work, there come times when these two branches will be of the greatest use to her. She may not be able to write her name, but she very likely must cook. She may own her millions and spend them freely, but there will come times when a thimble and needle are her most valuable possessions, because of her imperative need of them. It seems, then, that there can be nothing which will be more essential to the education of a girl than these two branches.

It is claimed that the mother is the proper teacher; the home the place to learn of these things. Granted! and the same may be true of many other branches, but the mothers can't do everything. Schools were created to relieve the mothers of a part of their duties in the bringing up of children,

and a teacher is trained in one kind of work to be able to teach young people his branch in the best manner. It is only one part of the co-operative plan on which we live.

When practice in sewing and cooking shall become an essential part of every young girl's education, we shall hear less of poverty among the masses of people congregating in large cities, for the women of the homes will know better how to use the money their husbands earn. Even though the knowledge gained be small in amount, it will count, and everything comes by little. "Practical" seems to be the watchword to-day, and nowhere can it be better applied than to the teaching of our young people. The technical schools are gaining ground everywhere, and they are practical in many directions, but they do not reach a great mass of children and young people, who have their only schooling in public schools. A girl of ten years of age is old enough to begin to learn these practical branches, and if given a little training from them through her girlhood days, many bits of helpful knowledge will enrich her mind, and her life work will be broader and more helpful because of the preparation given her for life's most common duties.

Just how this is to be brought about, just how the needed time and the needed essentials for teaching these branches are to come into public school work, the coming years will reveal. Today we only know we have need of these things, and we want them. Tomorrow our wants will be satisfied.

The time is not far distant when we shall feel that those things most liable to become a part of every person's life are the things to be most generally taught in our public schools; and so long as we eat food and wear clothing, cooking and sewing will be two kinds of work that must be constantly performed. If "practice makes perfect," then the sooner the practice is begun, and the more perfectly it is carried on, the sooner will perfection be reached. This practice will not be begun too soon, and in the public schools it will reach the great mass of the people sooner and more surely than from any other source. The practice will be systematic, and the results will be found in all the directions in which better clothing and better food will be an improvement in daily life.

KINDRED INSTITUTIONS.

*Note on Some of the Range Grasses of Arizona" and "Overstocking the Range" are subjects discussed in Bulletin No. 2 of the Arizona Station, Tucson.

"Weather record for July and August" "Analyses of Commercial Fertilizers" and "Feeding Experiments with Milch Cows," constitute the subject matter of Bulletin No. 41 of the Massachusetts Station, Amherst.

The Maine Station, Orono, gives experiments with the Babcock milk test for testing cream in its Bulletin No. 3, second series.

Bulletin No. 75 of the Michigan Station, Lansing, reports upon Fertilizer Analyses.

The New York State Station, Geneva, reports, in Bulletin No. 36, new series, upon "Insect Enemies of the Strawberry," "Diseases of the Raspberry," "Insect Enemies of the Raspberry," "Insect Enemies of the Currant," and "Gooseberry Mildew." Bulletin No. 33 of the same station gives "Explanation of terms of Chemical Analysis," "Commercial Valuation of Fertilizers" and "Composition of Various Chemical Compounds."

Bulletin No. 34 reports upon a comparison of dairy breeds of cattle with reference to butter production.

Bulletin No. 35 has for its subject "Some of the most common Fungi and Insects, with Preventives."

The Third Annual Report of the Board of Managers of the Rhode Island Agricultural School and Experiment Station, Kingston, is received.

"Maple Sugar" is discussed in Bulletin No. 26 of the Vermont station, Burlington.

Bulletin No. 15 of the Hatch Station, Amherst, Mass., gives results of experiments in greenhouse heating, special fertilizers for plants under glass, varieties of strawberries, blackberries, and raspberries.

The report of U. S. Statistician Dodge for October is at hand. A special report of the Chief of the Weather Bureau of the U. S. Department of Agriculture, Washington, is a most interesting document which shows in detail something of the work undertaken by that Bureau.

Bulletin No. 8 of the Utah Station, Logan, is devoted to experiments with ensilage with the remarkable result that it has proved an expensive and undesirable cattle food in the dry climate of Utah.

"The Wheat Midge" is the title of Bulletin No. 8, Vol. 4, second series of the Ohio Station.

"Experiments with Wheat, 1891," and "Daily Variations in Milk and Butter production of Cows" are subjects reported upon in bulletin No. 17 of the Illinois Station, Champaign.

The State Board of Horticulture of California, Sacramento, has recently issued two pamphlets, one of which will be of special value farther east. The pamphlet on "Peach Yellows," by the Secretary of the Board, contains recommendations of value to would-be peach growers. "The Olive Industry" is a report of the Olive Grower's Convention lately held here.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Bulletin No. 24 is printed, and is expected from the bindery within a day or two.

Mr. A. A. Cottrell came up from Wabauensee County Thursday to visit his daughters in College.

Lieut. Nicholson, of Fort Riley, has received the appointment of Quartermaster Sergeant, Seventh Cavalry.

Mrs. McCreary and family returned on Thursday from Dubuque, Iowa, where they spent several months with relatives.

Regent Finley is a delegate from the College to the National Farmers' Congress in session this week at Sedalia, Mo.

Vol. VI. of the *Inland Printer* is missing from the Printing Office. Will some of our printer friends help us to find it?

The Barn on the College Hill farm has been fitted up for experiments in Veterinary Science, and will be occupied at once.

Mayor Hacker, of Leavenworth, made a hasty round of College buildings late Tuesday afternoon in company of General McDowell.

Professors Olin and Georgeson are on the program of the Riley County Sunday School Convention to be held in Manhattan on the 27th and 28th of November.

Regent Wheeler was one of the Committee on Resolutions of the National Farmers' Congress in session this week at Sedalia, Mo. He is a delegate from Kansas.

Janitor McCreary's friends rejoice with him in his almost complete recovery from an attack of acute neuralgia of several months duration which almost made life a burden to the sufferer.

On her return from Hutchinson, Mrs. Kedzie spent a day in Newton visiting with old school friends, and was entertained in the evening by Mrs. Noble Prentiss and a company of ladies.

Prof. Georgeson has purchased twenty grade Shorthorn steers, selected from the large herds of Judge Sutton at Russell. They will be here next week ready for the feeding experiments to be tried this winter.

Prof. Nichols, who, his friends feared, was almost in the state of mind to make a vigorous argument on the affirmative side of that mooted question, "Is Marriage a Failure?" again enjoys the company of his help-meet, who returned on Saturday last from an extended visit in Chicago.

Mr. J. B. Acton, of Rice County, who once had two sons here, called this week in the hope of ascertaining the whereabouts of a third son, demented, who left home early in September in his shirt sleeves. The young man was traced to Manhattan, and is supposed to have left here two weeks ago.

The third division of the Fourth-years spoke in chapel yesterday as follows: F. S. Little, "The Individual and the Government;" J. L. McDowell, "P. M.;" Susie Noyes, "Be What Nature Intended You to Be;" R. A. McIlvaine, "The Deeds of the Scottish Covenanters;" Kate Oldham, "Thoughts on Imagination;" D. H. Otis, "The Love of Justice;" I. B. Parker, "Two Beliefs;" W. S. Pope, "The Danger of Corporations."

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

GRADUATES AND STUDENTS.

H. E. Moore, '91, came in from Chicago on Thursday.

T. H. Smyth, student last year, enters classes this week.

Sarah Marshall, student last year, visited with College friends yesterday.

Scott Acton, Second-year in 1883-84, died recently at his home in Rice county.

J. B. Thoburn, Third-year, is employed as local editor with the *Daily Nationalist*.

Effie Gilstrap, Fourth-year, will read a paper before the Riley County Sunday School Convention.

H. W. Jones, '88, is employed as Instructor in Mathematics at the Texas Normal College at Denton.

Ollie J. Bentley, student in 1888-89, returned this week from Colorado Springs, where she has spent the past year.

A. O. Wright, '91, is at home for a two-weeks' vacation in his school at Burr Oak. He will do local work on the *Nationalist* while here.

H. B. Walter, Second-year in 1890-91, visited the College on Wednesday on his return from Dickinson County, where he marketed a load of apples.

Eben Blachly, Second-year in 1890-91, of whose distressing accident mention was made in these columns two weeks ago, has so far recovered as to be able to sit up part of the time. He is at home.

The name of P. H. Fairchild, '86, appears upon the cover of the New York *Journal of Gynaecology*, Vol. I., No. 1, just issued, in "Fairchild & Co., business managers, 1329 Broadway, New York."

Mrs. Kedzie speaks in glowing terms of the paper, "Some Hidden Dangers in Food," dealing with ptomaine poisons, presented by Maud F. Sayers, '89, at the annual meeting of the Social Science Clubs at Hutchinson, last week.

W. H. Olin, '88, writes from Osborne that the three hundred pupils in the city schools make his office of Superintendent a busy one. He sends to the College for materials with which to put in a system of electric bells similar to that used here.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standing of 70 per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercise upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one; and this examination alone decides the grade.

Averages of grades in the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is made to parents; and any student, upon leaving College at the close of a term, may receive a certificate of standing.

The final grade and term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examination only upon recommendation of the Professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the personal supervision of the Professor in charge, and are thorough and exhaustive.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Y. M. C. A.—President, J. L. McDowell; Vice-President, J. B. Thoburn; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickinson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society—President, A. D. Rice; Vice-President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, I. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society—President, J. N. Harner; Vice-President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsmen, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

November 6th.
At the usual hour the Alpha Beta society was called to order by President Harner. Messrs. Abell, Clothier, Abell, and Fryhofer opened the programme with a song, "Speed Away." After prayer led by Mr. Thackrey, the Secretary called the roll, showing a good attendance of the members. We then listened to a well-delivered declamation by C. E. Abell, after which Louise Daily read an essay on "The Art of Conversation," which was both entertaining and instructive. Miss Edwards presented The Gleaner with the motto, "Keep Cool." After a few minutes recess the Society was entertained by an organ solo by C. E. Abell. Mr. Thackrey then presented some well-selected items of news, after which Mr. McIlvaine discussed the subjects of "Evolution" and "The influence of sunlight upon life." Mr. Smith also opened a discussion, and various members of the Society expressed their opinions on the subjects. Under the propositions for membership, the names of Mrs. Holroyd and Miss Halsted were presented. The Society then passed to the order of new business, under which some of the members tried to demonstrate that

"A little nonsense now and then,
Is relished by the best of men."
The programme was closed with a duet by Misses Martha and Sarah Cottrell, with Mr. Mercer at the organ. O. H.

November 7th.
The Hamiltons came to order at the usual hour with President Rice in the chair. Roll call. C. R. Hutchings led the Society in devotion. The minutes were read and approved. The names of G. A. Plasket, W. T. Anderson, and L. Purcell were balloted on, and Messrs. Anderson and Purcell were afterward initiated. J. A. Schiel delivered a declamation. C. A. Johnson followed with an amusing essay, narrating the incidents of a picnic party. Messrs. Doll and Leslie, on the violin and organ, furnished the society with music, the appreciation of which was shown by an encore. P. Law was music committee. The question for debate, "Have physical causes influenced national character more than moral causes?" was argued on the affirmative by L. Olmstead and C. D. Fay; on the negative by R. Laundry and C. Snyder. Some of the arguments by the affirmative were, that the people of a hot climate are more likely to be governed by a monarchy than the inhabitants of a cool climate are, because the former are lazy and inert and the latter energetic and active, and naturally want more freedom. The people of a hot climate are more warlike, as they are less intelligent, than those of a temperate climate. The inhabitants of a mountainous region are usually noted for love of physical activity. There was a period in Greece when the people paid much attention to physical training, and during that period they made very little intellectual advancement. The physical situation of countries has a great influence on the inhabitants, as shown by the people of Switzerland, whose peculiar surroundings develop an independent spirit which enables them to offer a determined resistance to the encroachments of other nations. The Norwegians are a very moral people, which is undoubtedly due to a great extent to their surroundings. The United States owes more to her size, situation, and climate for her rapid advancement, than she does to any moral influence. Her size has made the need of railroad and telegraph systems felt, and indirectly caused their development. The vast farming and manufacturing interests have been the cause of the great mechanical inventions and improvement of implements. The nature of our government is certainly due to the circumstances of the people who formed it. "Man is a creature of circumstance," as shown by the inhabitants of the different zones. R. Laundry and C. Snyder on the negative, held that education, hence moral and not physical causes, lessen the warlike characteristics of nations. Some moral cause, as teaching, will eradicate intemperance, but no physical cause could. It is education and not surroundings that improves a nation. The man who is well surrounded morally makes greater improvement than one who is well surrounded physically, and so it is with nations. "The best characters are found where there is the most religion." The heathen of Africa cannot be improved by the best of surroundings, but they can be by teaching them the gospel. A vote of the Society decided the debate in favor of the affirmative. W. S. Pope's oration was entitled, "The Corruption of American Politics." He presented in an unbiased manner, the drift of American politics. "The Deadly Hot Potato," was the selection read by F. Lawson. C. E. Yeoman, as newsmen, presented the chief events of the past week. The question, "Does the student have equal right with the professor to express his views in classroom, and should he?" was given quite a thorough discussion. The Critic reported, and the Society adjourned. W. J. Y.

November 6th.
The Ionian Hall was well filled when Pres. Gilstrap called the society to order last Friday. After the usual opening exercises, consisting of singing and prayer, followed by roll call, Miss McKeen was initiated into the society.

The weekly programme was a very good one. Everyone present felt repaid for attending. The music, especially, deserves commendation.

The first on the programme was a vocal solo, "If the waters could speak as they flow," rendered by Rena He der.

Maud Knickerbocker gave in a select reading some sketches from "One summer in a garden."

The Oracle, edited and read by Harriet Dodson, contained the third chapter of the continued story, which is growing very interesting. In addition to this it contained "The True Lady," "Some Halloween Tricks," "Life of Mohammed," etc.

The second musical number, an instrumental solo performed by Effie Crump, was followed by the discussion.

Jessie Whitford opened the discussion, and the subject was, "Is Dancing Injurious?" She had prepared a brief summary of the effects of dancing, and presented some points on both sides of the question, impartially. In this way she left the discussion open to the decision of the members of the society. But the Ionian girl is too wise to try to grapple with such a deep subject upon short notice, so the question was dropped.

Ida Pape with her budget of news next entertained the Society.

Closing the programme was a song, "Play up ye Wedding Bells," rendered by a quartette consisting of Misses Dewey, Lee, Haulebeck and Hunter. Following the report of committees, the reading of the minutes, and the assignment of duties, the critic made a number of very good remarks and criticisms. After the roll call, with quotations, the Society adjourned to meet Friday, Nov. 13, at 2:30 P. M. L. G. D.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Northwestern Kansas Teachers' Association will meet in Bellville, November 26th to 28th.

The second month of the term closed at McPherson College with over 150 students in attendance.

The Social Science Club of Kansas and Missouri held its annual meeting at Hutchinson, last week. The meeting was well attended.

It is stated that a new long-distance telephone has been invented by Prof. Blake and Mr. E. W. Caldwell, of the State University.

The High School of Lawrence has 63 Seniors, 123 Middles, 143 Juniors, and 20 unclassified students. The tuition for last year was \$2,000; this year the amount will reach \$3,000.

The Salina *Normal Register* is now a monthly, and comes to us in a greatly improved appearance; in fact, it is now one of the best and neatest educational papers west of the Mississippi.

The Washburn eleven played their first game of foot-ball at Kansas City last week and defeated the Kansas City Y. M. C. A. team. As a result, the *Reporter* is all foot-ball headlines, foot-ball rules, foot-ball notes, and foot-ball gossip. What next?

Athletics at the State University is receiving a wonderful impetus this year, and great interest is manifested in all kinds of college sports. A few days ago the Athletic Association completed the purchase of twelve acres from ex-Gov. Robinson to be fitted as a University athletic park.

Prof. Blake's theory of the cause of rain from the use of explosives is causing some stir in scientific circles. The theory, as given by the Professor, is that the moisture is collected, not by the concussion in the air, but by the minute particles of smoke from the gun powder, etc. This is a far more plausible theory than either Melbourne's or Dyrenforth's.—*University Courier*.

The following table shows the number and character of the books drawn from the prison library in this State during 1890: Biographical, 2,860; classical, 628; cyclopedia, 499; historical, 3,695; juvenile, 1,295; legal and political, 639; light literature, 13,842; magazines, 22,616; miscellaneous, 4,712; political, 508; statistical, 376; religious, 2,459; travels and adventures, 4,875; foreign language, 864.

We heard Senator Plumb a few days ago talking with a party of friends about the development of Kansas, and the strides she had made in her brief history, pay a great compliment to the young men of Kansas. With enthusiasm he exclaimed: "What a wonderful army of young men Kansas has turned out. They are bright, brave, and of the highest character. They are sought after in the east in all branches of business, and many of them are rapidly working their way to the front in the eastern newspapers, and in all the professions and lines of business. They are the most active and trustworthy of men, and are winning laurels for Kansas everywhere." This is a great compliment to our boys, and though we had never thought of it before, it is strictly true. It is almost a sufficient recommendation for a Kansas boy applying for a situation east to say he is from Kansas. The Senator spoke of the matter with the greatest degree of pride.—*Wellington Press*.

The students are often quite noisy and quite prone to build bonfires when they celebrate a victory. This ebullition of spirits and noisy sport is looked upon by the citizens of Lawrence with a mplaissance and a sort of good-natured pride. Last Saturday evening was an example of the perfectly good understanding existing between the citizens and the students. When the boys were about to build a bonfire at the customary corner, and several of the leading business men requested the boys not to do so, stating that they were absolutely without protection from fire, owing to the lack of water supply, the boys took up the stray boxes and filed down to the park and were decorously celebrating their great victory, when some of the half-drunken police took it into their muddled brains that the boys were law-breakers and purposed to stop all celebrating. Several of the boys received ugly raps over the head from the improvised billies of wagon spokes. Then there was a bonfire down in town and the police grew wrathful, and clubs were used a little too freely.—*University Courier*.

"EDUCATION FOR FARMERS' SONS."

Under the above caption the Lecturer of the State Grange of our State contributed an excellent article to the October number of the *Herald*. He asks, "Should the education of the farmers' son be different from the education of any other young man?"

We answer: In general, no; in the particulars that fit him for his occupation, yes. During the last twenty years science has extended its researches as far, and perhaps farther, in the fields of the farmer than in any other. Lawes and Gilbert, Wolff, Johnson, Shelton, Boussingault, Ilienoff, Hellreigle, and a host of others have invaded the laboratory of Mother Nature and wrung from her secrets without number, bearing directly on the tilling of the soil, a knowledge of which is as essential to the farmer, if he would secure the best returns from his fields, as a knowledge of medicine to the doctor or law to the lawyer. Then, too, stock-raising is in reality as much a science to-day as chemistry, mathematics, or geology. True, Robert and Walter Colling, Booth, Bates, and Bakewell, created (almost literally) Shorthorn cattle, Leicestershire sheep, and cart-horses, before scientific stock-breeding was heard of; but no chemist in his laboratory, no mathematician in his library, ever followed scientific principles more closely than they, though they hardly realized it at the time. In-and-in-breeding, high-breeding, heredity, atavism,—what does the farmer know of them? Nothing. Even the names are unfamiliar; and yet they, in common with scores of other factors, determine the qualities of every chicken, pig, calf, colt, or lamb on a farm. Truly, the American farmer's son has nearly a boundless course of study before him if he desires to farm intelligently and most profitably?

But there is another factor in the farm boy's life and education which should be a prominent one, and which, if given the place it should be, would satisfactorily and forever settle the question which vexes so many farmers' minds, "How shall we keep our boys on the farm?" Let me relate "an o'er true tale" of a farmer family of my acquaintance to illustrate how this factor may be made to do its work. Perhaps twenty years ago, a young farmer and his wife emigrated, by means of a mule team and covered wagon, from Southern Iowa to Northern Kansas, where a homestead was taken, a "dug-out" dug, and the young couple commenced their battle of life. Their capital consisted of their few household goods, mule team, exceptionally strong bodies, and perhaps fifty dollars in cash. Children came to bless their home as the years rolled by, until now they have five as splendid sons as ever gladdened parents' hearts. The father is very athletic, and commenced teaching his sons all he knew of athletics almost as soon as they could walk; and to-day there are no wrestlers, runners, jumpers, or vaulters like them in their neighborhood. A small portion of the profits of his farm was every year invested in books by the father, and a library was formed by the time the boys were old enough to use it; a youth's paper (*The Youth's Companion* for the oldest and *The Little Corporal* for the next, we remember) was taken for each one as soon as he desired it. They were dressed as well as the boys in town three miles away. Their father is famed as a stock-raiser. When he goes to Kansas City or Chicago with his cars of fat cattle and hogs the boys know a liberal portion of the returns will go into their pockets as a just reward for their labors. Mother and father being lady and gentleman in the fullest sense of the word, the boys acquire a polish as they grow up that might be envied by any young man. But they are compelled to be gentlemen, for they have no means of learning to be anything else. It is needless to say that the father has prospered; that his earthly possessions number many more acres than are within the boundaries of his homestead. His boys "work like Turks" when not at school. Having their minds full of food for thought, gathered from the best books, magazines, and newspapers of the day, they do not find the hours spent between the plow-handles in any sense dull. Having a companion and a playmate in their father far superior to any they can find elsewhere, they prefer to spend their leisure hours at home. Having all of the books and papers they care to read, and a taste for reading carefully developed and fostered from the time they learned the alphabet,

they find their "pleasant parlor" the best place on earth to spend their evenings. As they watch their father's stock grow sleek and fat under their care, they know that a share of the cash from its sale will reward them. In short, they are receiving an education that makes them desire to stay on the farm. While it has cost their father considerable cash and physical exertion to educate them thus, it has certainly paid him well. This method of educating farmers' sons we believe to be the correct one, and we would like to see every farmer in America adopt it.—*J. W. Van Deventer, '86, in Denver Fancier and Farm Herald*.

MANHATTAN ADVERTISEMENTS.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 21, 1891.

NUMBER 13.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

A SUCCESSFUL CORN HARVESTER IN SIGHT.

BY PROF. C. C. GEORGESON.

AMERICAN genius has finally evolved a successful corn harvester. It has been a long time coming, but it is here at last, and doubtless here to stay. It goes without saying that "it fills a long-felt want."

The machine referred to was in operation here on the College farm last month, when it cut the greater part of our ensilage crop. It is manufactured by D. M. Osborne & Co., Auburn, N. Y., who generously offered to send us a machine for trial. A brief description may be of interest to our farmer friends. I may preface the description by saying that it will cut and load corn, sorghum, and all similar crops grown in rows, and that it will do this, one row at a time, as fast as a team can walk. One span of horses is all that is needed to pull it.

The way it works is this: The row is embraced by a pair of arms some four feet long, which project outward and downward till the points are but some six to eight inches from the ground. These arms gather up leaning stalks, and guide the corn in the row against a simple, though ingenious, cutting apparatus which promptly cuts every stalk as fast as it comes to it. When the stalk is cut it falls backward upon a table arranged over the running gear. This table is some seven or eight feet long, and inclined upward at an angle of about 45 degrees, so that while the end upon which the corn stalks are dropped is but a couple of feet above the ground, the upper end is some eight feet or more from the ground. This table is provided with several endless carrier-chains stretching lengthwise around it, and all of which move at same rate of speed; and these chains carry the corn stalks up and over the upper end of the table as fast as they are cut. Now, the loading is done by simply driving a wagon with a low, broad rack slowly along side of the machine, and so close under the elevated end of the above-described table that the corn-stalks which drop from it fall upon the rack. The corn is thus loaded lengthwise on the wagon, with the butts pointing forward. This, you see, is a simple enough arrangement; and we notice further that when everything is in working order this machine, with a team to pull it and one man to drive, will cut and load the corn crop as fast as you want to drive the team.

The machine that was sent to the College for trial was built for northern corn, and we found that when it was put into our tall ensilage corn, which stood 12 to 14 feet high, the table was too narrow to elevate the corn properly on to the load. The table not being as broad as half the length of the stalks, the latter would topple over on the ground with the tops, while the butt ends were drawn partially onto the load. A wider table would, of course, remedy this defect. In our ordinary field corn it worked satisfactorily.

In order to load well, the rack should be long enough to carry two lengths of the corn, and then the hind end should be loaded first. A broad rack with some four or five stakes put on the side away from the machine will permit of piling a good load on the wagon without any handling of the corn. We found that from 1200 to 1600 pounds of green corn could readily be put on an ordinary rack, but, if it is desired to carry much larger loads, it is well to have a man on the wagon to pack it on. A binder attachment is also made for the machine, which takes the place of the elevator table when it is desired to shock the corn. It then ties it into bundles which are dropped along the track of the machine as in the case of the ordinary self-binder.

The machine has not yet been placed on the market, but I understand that it is the intention of the company to have a stock ready for next year's corn harvest. There can be no reasonable doubt of its success, nor of its labor-saving character in handling the corn crop. It is not only as an ensilage harvester that will be useful. It will make it possible to save in good shape the enormous amount of corn fodder which now annually goes to waste on western farms, or which at best is only imperfectly utilized, simply because it is out of the question to handle it at a profit with hand labor and the implements that have heretofore been available for that purpose.

INDUSTRIAL EDUCATION AND MANUAL TRAINING IN EUROPE.

BY PROF. J. D. WALTERS.

THE causes which led to the establishment of the first industrial schools of Europe were of a purely economic kind. The gradual decay of the ancient system of apprenticeship, together with an increasing demand for scientific and skilled work in all departments of industry, led to the founding, in the second quarter of the present century, of trade schools and of polytechnic institutes, the former to supply skilled workmen, and the latter to furnish scientific directors and engineers. The founders thought but little of the pedagogical effect of their respective courses of instruction. They were satisfied that theirs was the most logical way to overcome industrial competition, to give their respective cities the desired economical prominence, to help in this way the producing, or working classes, to reduce poverty, etc. The frequent attacks of the old-school educators were answered by stating that this education was surely better than none, and that individual poverty was the great enemy of public morality. These trade schools, established to educate weavers, metal workers, watch-makers, carvers, stone-cutters, brewers, opticians, jewellers, ship-builders, tailors, etc., were usually conducted on the half-day plan, i. e., the forenoon was given to school instruction in mathematics, drawing, and special trade branches, while the afternoon was spent in the work-shop or the factory at remunerative labor.

Agricultural schools, too, were organized on this plan. The purpose of all these, however, was not so much to give the pupil a general education—for this he could get in the public school—as to teach him how to handle stock, to prepare manure and composts, to propagate trees and shrubs, to fight insect enemies, and to keep farm accounts. The courses were usually of two years duration, and the main good which they did was, perhaps, in the enthusiasm which they begot, and the habit of observation which they incited.

Gradually, and without planning it at the start, these agricultural schools became also experiment stations for the testing of new methods of planting and tilling, the investigation of chemical processes in regard to cattle feed and manures, the acclimatization and propagation of foreign fodders, vegetables, flowers, shrubs, and trees, and the breeding of specific breeds of cattle and other farm animals. Some of these schools had made themselves famous in this direction long before such work was seriously thought of in the United States.

The oldest agricultural college in Europe, that of Hofwyl by Bern—about a mile from the teachers' Seminary at Munchenbuchsee, where Pestalozzi taught and worked,—was founded in 1818 by Jakob Fellenberg, a Bernese Patrician, and it is just to state that for over a quarter of a century the Hofwyl school became the pattern for almost every industrial school of the European Continent, and that in it did incalculable good in proving the

possibility of a teaching of farm work and shop work to large numbers of pupils at small expense and with manifest beneficial results.

The polytechnic schools of Europe were of an entirely different character, though organized for a similar purpose. They were to be the scientific counterparts of the old classical universities, and comprised a four-years' course of pure and applied mathematics, the sciences, and modern languages. Like the universities, they demanded of the candidate for admission preparatory work of the most thorough kind; but like these, they saw but little educational value in manual labor, and gave but little attention to the work bench and the anvil. With the exception of chemistry and the related branches, little laboratory work was done up to 1860. They were usually divided into four or five so-called schools,—a school of civil engineering, one of architecture, one of mechanical engineering, one of forestry, and one of technology, i. e., applied chemistry. Many of these schools, of which in 1860 there could not have been less than fifty in Europe, have grown since then into extensive institutions, with thousands of students and scores of professors.

The last thirty years have transformed both of these industrial schools. Experience taught that the best results could be expected only from broad courses, educating both the head and the hand; that no scientific education was too high or too thorough for the workman; and that no actual work on the bench and the anvil or loom could be too well understood by the foreman or director. More scientific instruction was added to the limited curriculum of the trade school; and extensive laboratory work in applied mechanics, technology, together with educational manual labor, was introduced into the polytechnic institute, so that both kinds of schools have approached the formerly conspicuous dividing line between the directly practical and the purely scientific, and have become more nearly the same in aims and methods.

Another step was the introduction into most of the trade schools and all of the polytechnic institutes of the analytical system of shop instruction. It originated in 1868 with Professor Della Vos, director of the Imperial Technical Institute at Moscow, and is known in the United States, where it has been adopted for a dozen years or more, as the Russian system. Professor Della Vos reasoned that instruction in hand-work, to be fruitful, should consist in a series of carefully graded exercises, and with the sole view of teaching the manipulation of the representative shop tools; that it should comply with the Pestalozzian maxim—all instruction must proceed from the simple to the complex, and only one difficulty must be presented at a time.

The introduction, with some modification, of the Russian system of sloyd into European industrial schools has undoubtedly been the greatest step forward in the field of education since Froebel founded the Kindergarten, and it may be said that Della Vos "built even better than he knew." It was quickly observed in every school where thinking teachers had a fair chance for observation that the educational value of sloyd, properly taught, could hardly be over estimated. The testimony was so overwhelmingly in favor of the influence upon the intellectual activity of the student, that the formerly much-criticized proposition of Jean Jacques Rousseau, that "a pupil will learn more by one hour of educational manual labor than he will retain from a whole day's verbal instruction," was verified as a truth, and genuine respect was accorded where ridicule had been the rule before. The conclusion was naturally that if there is such an educational force in manual labor when properly taught and connected with scientific and mathematical instruction, the knowledge of practical mechanics gained must form a net gain, so to speak, for the pupil.

A logical result of this pedagogical discovery was the rapid introduction of manual training into all kinds of schools as an auxiliary means of stimulating mental, moral, and physical growth.

MECHANICS ON THE FARM.

BY G. W. WILDEN, '92.

WILL a knowledge of the principles of agriculture, alone, suffice to enable one to become, as the homely phrase has it, "An all round farmer?" I think not. It is well one should have this knowledge; in fact, it is absolutely necessary if he would make a success of his work. It matters not how he may obtain it, whether by the study of books, or by experience (I think the latter the most trustworthy), he must have it. One class of farmers at the present time realize the necessity of an education in this direction, while another class are wholly indifferent in the matter; but both classes meet on a common plane in their neglect to consider the application of mechanics to the farm. How many farmers have really stopped to consider the fact that every machine used on the farm, from the simple "jack-knife" which the farmer carries in his pocket, to the complex steam engine, involves in its workings one or more mechanical principles? I will venture the assertion they are few. Let us first consider some of the common, every-day occurrences in which the economy and neatness of mechanics are violated, and then proceed to the more important points. Who has not watched the farmer split pieces of boards 12 x 12 inches, or larger, into stove wood, while his hens are building their nests on the bare ground? Is this economy? No. Save these scraps of boards, lay them away until you have three or four, and then make a hen's nest, set your hen in it, and raise a dozen chickens instead of two or three. It is a well-known fact that cents make dollars, and so, in a certain sense, scraps make boards. Another mistake often made is where a farmer has a team of unequal size, and yet gives each the same leverage when he hitches them to a machine. He has certainly never figured the problem out, or he would readily see what an advantage the large horse has over the small one. Suppose the horses to weigh 1000 and 1300 pounds respectively, and that the large horse simply throws his weight against the collar. The common double-tree is about three feet long, hence each has a leverage of eighteen inches. The small horse will need to exert a strength of 5400 lbs. in order to produce equilibrium. Now, if we would simply move the hole in the double-tree 20.345 inches from the small horse's end, his weight when thrown against the collar would balance that of the large horse. Many such little losses the farmer could readily prevent if he would only observe. Observation is half of mechanics.

Another great source of loss to the farmer is in the injudicious purchase of machinery. Many men purchase machines for which they have no earthly use, and of whose workings they are totally ignorant. Right here I wish to draw an example from life: In a certain township, in a certain county in Kansas, there are nine steam threshers, where three could easily do the work that is to be done. Many of the owners lack a great deal of being practical machinists, and most of them also placed a mortgage upon their farms in order to buy the machine, and possibly will deprive their families of a home simply to satisfy their desire for machinery. Probably the greatest benefit the farmers can derive from a knowledge of mechanics is in the selection of machinery for farm use. How many farmers really understand what a machine is when they see it, and can tell whether it will work or not without first trying it?

Suppose two mowing machines be presented for choice. How will the unskilled man choose?

According to his fancy, of course. How would the mechanic choose? He would begin by asking himself these questions: How much power have I to apply to this machine? How much of this power will be taken up by transmission through this set of gearings, and how much through that set? And so on through the entire machine. Finally, when he has reached that end of the machine where the work is to be done, he will know the efficiency of his machine with a certainty. He will know whether it is the one he wants or not. This is the knowledge a farmer needs, combined with the knowledge of agricultural principles to make him successful. He should be able to analyze a machine at first sight, and see at a glance what he can and what he cannot do with it. He should know, first of all, how to take care of a machine after he gets it. Too many Kansas farmers make their machinery furnish shelter for some of their animals, instead of having a shelter for it.

So far as the farmer is concerned, it is not necessary to go into speculative mechanics; he does not need to know the distance a falling body will pass through in any given time. But it would certainly be a pleasure to him to be able to find out exactly. And why not have this knowledge when it can be had by simply memorizing the simple formula, $D=2t-1 \times 16$. He does not need to know that a light body will fall as rapidly as a heavy one when they both meet the same resistance. If farmers, and others, too, for that matter, had always thoroughly understood the laws of motion, the force of gravity, cohesion, adhesion, friction, and the action of bodies subjected to a number of forces, that long-hoped-for perpetual motion machine would have been laid aside, many a home would have been made brighter, and men would have ceased long ago trying to create what belongs to the province of God, and Him only. So, too, many a patent-right agent would have gone away from the farmer's door, not with a mortgage on the farm, but with the machine with which he came; and the farmer would have both his farm and his money.

This is the line we wish to see the farmer educate himself in. Practice economy and neatness around your house, barnyard, granary, and corral. Always know what machine you want, how to select it, and how to take care of it after you have it. Combining this knowledge with that of agriculture, your success is assured.

A PROPOSED FEEDING EXPERIMENT.

BY PROF. C. C. GEORGESON.

IT is the plan of this Station to carry out a feeding experiment with steers this winter which it is hoped will furnish useful data in regard to the best way of fattening steers. The experiment has already taken a tangible shape in that we have procured a fine lot of twenty grade Short-horn steers that are to be used for the purpose. These steers are three years old, and all have been dehorned. They are nice, smooth animals, and average 1200 lbs. in weight each. They were bought from Judge Wm. B. Sutton, of Russell, Kansas, who raised part of them himself, and part were raised by his neighbors, and they can therefore be taken as a representative lot of native Kansas steers, coming as they do from a region where stock-raising is the chief interest, and where the conditions are such that all possibility of pampering the stock is precluded. It is proposed to carry out four experiments with them, which may be briefly outlined as follows: The twenty steers are to be divided into four lots of five each, as even in weight and all other characteristics as it is possible to divide them. One lot of five will be placed in a feed lot near the barn, where the only shelter afforded is a shed erected for the purpose. They are to be fed in accordance with the custom

Continued on page 52.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

The special session of the Webster Society will be held this evening.

Mr. Barnes, of Dover, visited his son in First-year classes this week.

Prof. Hood's youngest son, Carl, was seriously ill the first of the week.

Four new students are enrolled this week, making the total enrollment 492.

Prof. Popenoe lost about seventy-five bushels of apples by the recent cold snap.

Sec'y. Graham has just been elected a life member of the State Horticultural Society.

Mr. and Mrs. Higgins, of Eureka, visited College Monday forenoon with Mr. and Miss Castle.

Fifty bound volumes of the Third Annual Report of the Station are received for the use of the officers.

The thermometer reached its lowest mark of this season on Tuesday morning, registering from 5° to 9° F.

The Library receives 110 bound volumes this week from the State Printer, and gains 35 volumes by purchase.

The Manhattan Horticultural Society held its quarterly session in Horticultural Hall on Friday afternoon of last week.

Professor Rain was called away Monday by a telegram announcing the serious illness of a near friend in Cleveland, Ohio.

Prof. Olin lectures before the Marshall County teachers at Marysville on Friday evening next on the subject "Reserve Forces."

There will be no exercises in College on Thursday, Thanksgiving Day, except the social for students and members of students' families.

Mr. Mortimer Levering, Secretary of the American Shropshire Association, sends to the Library four volumes of the Association Record.

The College has received a present of a dozen valuable pamphlets from Robert Warrington, chemist at the Rothamsted Experimental Farm.

Farmers' Institutes have been planned as follows: Oneida, December 3rd and 4th; Frankfort, December 17th and 18th; Gardiner, 17th and 18th.

Senator Plumb sends the Library a copy of "Diseases of the Horse," the illustrated treatise recently issued by the Department of Agriculture.

Mr. Frank Smith, a prominent farmer of Clay county, visited the College today for the first time. He was accompanied by Gen. McDowell, who took care that the visitor should see everything of interest.

The INDUSTRIALIST attempted to state last week that Lieut. Nicholson, Seventh Cavalry, had been appointed Regimental Quartermaster, but a perverse pencil—pencil, mind you, not types or compositor, who are, as a rule, made to suffer for the mistakes in newspaperdom—made it read Quartermaster Sergeant.

Encouraged by the success of the experiment of two years ago, and anticipating Prophet Hicks' severe winter, the peach trees in the College orchard have again been laid down, with a thorough watering of the soil; and it is safe, even now, to predict that ours will be the only peaches worth mentioning in this "neck o' woods" next year.

The fourth division of the Third-year class occupied the chapel rostrum yesterday afternoon as follows: Maude E. Knickerbocker, "Advancement of Civilization;" R. M. Laundry, "The Patriotism of Our People;" T. E. Lyon, "Puritan and Spartan Heroism;" Mary E. Lyman, "Christ Calming the Tempest;" W. O. Lyon, "Against

Whipping in the Navy;" Elizabeth De W. Morrison, "An Age of Passion;" Henry W. Moore, "Expediency of Direct Taxation;" M. W. McCrea, "The Duty of the State;" W. D. Morrison, "Conservatism and Reform."

GRADUATES AND STUDENTS.

B. R. Elliott, '87, after a month at home, returned the first of the week to Nederland, Colorado.

A. O. Wright, '91, resumes his work as teacher near Burr Oak on Monday for a four-months' stretch.

P. C. Milner, '91, is reported as being pleased with his position in the Santa Fe Railway offices in Topeka.

H. E. Moore, '91, spent several days this week with friends at the College. He goes to Portland, Oregon, for a year.

R. K. Peck, Fourth-year in 1884-5, is to be married on Thanksgiving Day to Miss Carrie Francis Franks, of Junction City.

W. A. Anderson, '91, took a rest from his labors as stenographer in the Rock Island offices in Topeka, to visit the College this week.

Robert Rehfield, student in 1890-91, has organized a Young Mens' Christian Association at Butte, Montana, where he is employed.

Dustin Avery, Second-year in 1882-83, found few familiar faces in his visit to the College this week. He is locomotive engineer in Old Mexico.

"STAGGERS" OF HORSES.

Bulletin No. 24 from the Veterinary Department of the Experiment Station, just issued, treats of "Enzootic Cerebritis, or 'Staggers' of Horses." The conclusions are summed up as follows:—

"The disease variously known as 'staggers,' 'mad staggers,' etc., as occurring in Kansas during the past fall and winter, is caused by feeding corn which has been attacked by a mould—*Aspergillus glaucus*. The spores of this mould gain entrance to the circulation, and find lodgment in the kidneys and liver. The latter is more affected than the kidneys, probably on account of the lower pressure of the circulation. The spores germinate here, and cause inflammation of these organs. The cerebral symptoms are the result of the formation of an abscess in the cerebrum. This abscess is caused by an interference with the blood supply, probably from spores or mycelia of the mould in the circulation. The spores of *Aspergillus glaucus* seemed to retain their infectious properties for about six months, from October, 1890, to March, 1891. Mules, cattle, and pigs do not contract the disease.

"Treatment.—In this disease, an ounce of prevention is worth many pounds of cure. The method of prevention is obvious: Do not feed mouldy corn, or turn horses into fields where mouldy corn can be had. In feeding ear corn from the crib, care should be exercised to pick out the mouldy ears, or break off the mouldy tip. In case the corn has been shelled, it can be poured into water, and the mouldy kernels, floating, can be skimmed off.

"After an animal has been taken sick, treatment is very unsatisfactory. The animal should be kept as quiet as possible, in a clean, dry, well-ventilated and strong box-stall. A purgative may be given, of about seven drachms of aloes. One drachm of the iodide of potash or three drachms of the bromide of potash can be given in sufficient water every three hours, and cold applications to the poll by means of wet cloths are helpful. In case the spinal cord is affected, a moderate blister can be applied along the spine. Care should be taken to excite the animal as little as possible, and to avoid choking it in giving medicines, as it is often difficult for the animal to swallow."

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Y. M. C. A.—President, J. L. McDowell; Vice-President, J. B. Thoburn; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Ionian Society—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society—President, A. D. Rice; Vice President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, L. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society—President, J. N. Harner; Vice President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsmen, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

November 14th.

President Tucker called the Webster Society to order. Roll call. M. F. Hulet led in devotion. Mr. Dean was initiated. The debate was short but interesting. Question: "Resolved, that when a candidate for public office, a man's civil war record should be one of the predominating factors in his eligibility to the office." J. Frost, first on the affirmative, opened the debate with the argument that all cruelty in the late civil war, to the Union men, in prison and other places should be and is charged against the Confederate leaders and soldiers. That many of these men still have a disloyalty for the government. The Ku-Klux Klan and other similar organizations show this too plainly. Also their reference to Jeff Davis at the time of his death. A bitter feeling will always exist between the North and the South. It is the same with America and England. The Revolution is over a hundred years old, and still that bitterness exists. Moreover it was the Union men and not the rebels that saved the country, and made of it what it now is. And it is the Union with a civil war record that deserves the office in the government. Mr. Otis, the negative in refuting this argument, says that we want the best men of the country in our public offices. Men of moral principles, good understanding, that will stand up for what they think to be right. And to find these men we must go outside of civil war affairs. Besides, if we elect men with war records to office they will use their influence in helping other men with war records to office, at the expense of better men—men who are better qualified to carry on the work of the government. The affirmative was assisted by Mr. Pfeutz, who maintained that a man who has fought and served his country in time of peace and war will necessarily take more interest in the welfare of the country and strive to make it foremost of all nations. Therefore the old soldier is the man we want in office whenever we can get him. The assistant on the negative, Mr. Platt, says that the enmity between the North and South will never cease if we continue to shake the bloody shirt, which the affirmative proposes to do by electing to office only those who fought in the Union ranks. We want new men, with new ideas, at the head of our government—men, regardless of their military ability in past wars. Grant was a great general, but was a very poor executive. The affirmative in his last speech said if the southern men are brought into office they can do a great deal of harm to the country, and from the way things are carried on in the South now, as regards the North, no one would predict otherwise. The negative closed the debate with the statement that soon after the war it was well to pick our officials from men of civil service, but now we should choose from all. Many of the men who fought in the civil war are not well enough educated to do government business of today. The Society decided in favor of the negative. A declamation was rendered by J. U. Secrest. Select reading C. R. Kistler. Essays by G. W. Crouch and E. M. S. Curtis were both interesting. The Society now adjourned to meet in 10 minutes. The music that was to be, wasn't. By motion the order of discussion was passed and the Society spent an hour in the solution of some very important problems. After report of critic and reading of the minutes, the Society adjourned. G. K. T.

November 14th.

Soon after chapel exercises on Friday last those who had gathered in Ionian hall were called to order by Pres. Gilstrap. After the singing and devotion, the roll was called, showing quite a large attendance. Miss Huber cast her lot with the Ionians. The programme was opened by an instrumental solo, rendered by Rena Heider. Myrtle Whaley, who should have read an essay, was absent. A very amusing selection, "Alec's courtship, and the mistake he made by it," was delivered very nicely by Elsie Crump. Hilda Walters favored the society with a violin solo, "Yankee Doodle" with variations. It was heartily applauded, but the young lady refused to respond to an encore. Ora Wells as editor of the Oracle used the motto, "Neglect not the gift that lies within thee." Some of the contributions were, "The Old Story," "Self Cuteness," "Your Brother," "A Day in the Mountains," "Our Conversation." In addition to these, there was the fourth chapter of the serial. After the reading of the paper, Fannie Cress and Mabel Selby entertained the society with a vocal duet. The question for debate, "Resolved, that irrigation in Western Kansas and Eastern Colorado is the only practical means of making the country productive," was argued on the affirmative by Blanche Hayes. She stated that it is the general rule that successful agriculture cannot be carried on where there is an average rain-fall of less than twenty inches, or at the very least of less than fifteen inches. In these countries the average rain-fall is much less than this. The country is well adapted for the construction of canals. Irrigation has not been made a success until lately. It was first introduced by the Mexicans, but did not prove successful. In 1859 the gold fever was at its height and many people flocked to the gold districts. They found that the only place where agriculture could be carried on was in the low-lands. Now, by means of irrigation, the uplands are usually valuable. At first it was doubtful if the products could support the people. Now there is an excess. Potatoes were given as an example of the benefits. The potatoes grown there by irrigation are considered the best in the market. Lizzie Myers on the negative thought that the rain-maker has removed all necessity for irrigation. If the country is in need of ten or fifteen inches of rain, all that is necessary is to order it. Then, too, the men cannot run the irrigating ditches, the Alliance, and the Legislature all at the same time. Something will be likely to suffer and it would probably be the irrigation. Daisy Day, the second on the affirmative, was absent. Eusebia Mudge in her place told something of the irrigation in Mexico; the impossibility of raising anything in the sandy soil unless irrigation is used. Lilian Oldham should have further argued the negative, but was not prepared. After some brief remarks by the leaders, the debate was closed. Messrs. Wildin, Burtis, and Wright, the judges, decided unanimously in favor of the affirmative. An instrumental solo by Nora Newell was followed by the report of the news girl, Edith McDowell. After the usual business and report of critic the society was adjourned. L. G. D.

November 14th.

The President being absent, Vice-President W. E. Smith called the Hamiltons to order. Roll call. Devotion, led by G. G. Boardman. The minutes were adopted as read. Mr. G. L. Plasket was initiated. A P. Carnahan opened the programme with a "Stump Speech" which he gave a very effective delivery. Then a "Chinese Legend" was declaimed by N. H. Painter. In his essay, F. G. Trzaskowsky gave an account of what led to the invention of the Phonograph, and a few of the many possibilities of the machine. The question, "Would a further extension of territory be advantageous to the United States?" was affirmed by J. H. Persinger and O. A. Otten, and negated

by G. G. Boardman, and C. L. Gall. The Judges, Messrs. Fay, Carnahan, and Painter, decided two to one in favor of the affirmative. Recess, ten minutes. J. D. Riddell, music committee, rendered a very choice piece of music on the clarinet, accompanied by F. E. Smith at the organ. An unusually good number of the Recorder was presented by C. R. Smith. Some of the pieces were as follows: "Some Good Advice," "N. vember," (poem) "Koran," (chapter CXIX), "A Plea for Justice," (poem) "Mrs. Caudle's Curtain Lecture Realized by a Corporal," "Third Year Bliss," (poem) "Charles Brown's First Appearance in Society," "Dr. Mayo's Dream," (poem) "Advice to Young Members," and "The Successful Student." E. W. Conrad read a selection which closed the programme. After transacting a considerable amount of business, and hearing the report of the Critic, the Society adjourned. W. J. Y.

November 13th.

At the usual hour today, President Harner called the Alpha Betas to order. The Society was first entertained with a solo, "Strangers Yet," by Maude Parker, with Selma Lund at the organ. After devotion led by R. A. Clark, the Secretary called the roll, after which Mrs. Holroyd and Miss Halshead were initiated. Mr. Thackrey then read an essay. Following this was the debate on the question, "Resolved, that dancing should be one of the amusements of the College socials."

Mr. Clothier, opening the affirmative, said that dancing is one of the most healthful of exercises, as it brings many muscles into use. It is also one of the most pleasant exercises, and anything that affords pleasure is right in itself if not carried to excess. Dancing is as right as singing, for it is simply marking time to music. It also aids in perfecting one's form and the ability to handle one's self. It encourages the social nature and elevates the moral nature. People get a better opinion of each other by acquaintance in a ball-room than in any other place in society. Dancing is a natural outgrowth of the love of music. Mr. Clothier here called for an illustration in the form of a violin duet, by Messrs. Abell. He said the violin is the most perfect instrument ever made. Miss Daly, on the negative, said that few sets of muscles are used, hence the beneficial effects of the exercise are lost. Indians and savages have dancing to perfection. All it does is to create excitement. It is carried to greater excess than any other recreation. It is antagonistic to virtue and purity, and the company that the dance compels one to keep is not of the best. The violent exercise at night makes one good for nothing the next day. Mr. Thompson continued the argument on the affirmative. From the oldest history—the Bible—we find that the dance has been carried on since the earliest times. Music is from the same source. Everybody keeps time to music. There is nothing that will hold and thrill an audience so well as music. The violin is used most in dances. Though we cannot dance, there is not one but likes to see a good dance. Then dancing encourages good dressing in the young ladies. The best thing we can do is to substitute the dance for Miller Boy and kindred amusements. Mr. Thompson then called for another practical illustration. Birdie Seacrest, continuing the negative, said that dancing is not considered a healthful exercise. It is against the principles of any college to encourage dancing. If we had dancing at any of our socials, but few could partake in it, and many of us on account of our beliefs would have to stay at home. The object of the socials is to have a good social time, and dancing would do anything but fulfill the object. But we may have any kind of music from a violin to a cowbell. Mr. Clothier, in closing the affirmative, thought his opponents didn't know anything about it because they had never danced. We do have a real genuine dance every time we have a social, only the beauty is all left out. A two hours' dance, with rests between, won't hurt the health of anybody who is healthy enough to attend college. George Washington owed his success socially to his training in the ball-room. Because somebody says dancing isn't appropriate, doesn't make it so. Miss Daly then summed up the arguments on the negative. She thought that things that were respectable in Washington's time are not so now. The most respectable women are those who do not dance. Dancing leads to drinking among both ladies and gentlemen. The judges decided unanimously in favor of the negative. Sarah Cottrell then presented the Gleaner. After recess, Mr. Clark entertained the Society with a solo, "Baby Has Gone to Bye-Lo Land," Miss Frynofer at the organ. After newsman's report, new business. The programme was closed with an organ and violin duet by Miss Lund and Mr. Fryhofer. O. H.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Irving has a public library of nearly 1000 volumes.

Under the auspices of the Topeka free library, a class of fifty students has been enrolled to attend a course of twelve electrical lectures by Professor Blake, of the State University. The course opened last week.

Speaking of the foot ball game between the Washburn College team and the Y. M. C. A. of Kansas City, the Kansas City *Star* remarks: "Better no game at all than the very un-Y. M. C. A. contest of last Saturday."

A Kansas court has been organized in the law department of Michigan University. It opens with twenty-seven members. W. H. Sears is judge, William P. Borland clerk, and Ernest A. Fink sheriff. It is organized for the purpose of making a study of the Kansas code.

Colonel Allen Buckner, familiarly known as the "fighting parson," is no longer Superintendent of the Kansas Institute for the Blind in Kansas City, Kan. Notice was received by him last week from the Chairman of the State Board of Charities that his resignation had been accepted to take effect January 1, 1892. The letter of notification also informed Colonel Buckner that F. W. Williams, Assistant Superintendent, would be continued in charge of the Institute until the next regular meeting of the Board, which takes place in June, 1892.

The State University wants a song. The *Courier* paints the following ideal picture of it: "Not necessarily a song of nice words and classical tune, but characteristically distinct and individual K. S. U. song—one that we can march to, and that has a rousing influence by reason of its lively time and significant words—a song that will be to the University what the 'Marseilles' is to France and Columbia to the United States. Here is an opportunity for some musically inclined girl or boy to fill a long-felt want, and at the same time gain a glory that will never fade and a name that will never be forgotten. Let some one step forward."

A PROPOSED FEEDING EXPERIMENT.

Continued from page 50.

of the country, on ear corn and corn fodder and other "roughness." Another lot of five is to be tied up in the barn, and fed in exactly the same manner as the lot out of doors, the only difference in treatment being the difference in shelter. We want to see if it costs more to feed a steer out of doors than it does to feed him in the barn; and, if so, is that extra cost sufficient to justify the feeder in providing good barns for his stock while they are fattening. A third lot of five steers is to be tied up in the barn and fed on the same plan as the other lots, with the exception that we will cut the fodder, and grind the corn into fine meal. The object is to learn whether it is true, as is often claimed, that a given quantity of corn meal will go farther in the production of beef if ground fine than when fed whole. A fourth lot of five steers will in like manner be tied up in the barn and fed on a so-called "balanced" ration. In other words, this lot is to be fed in accordance with the teachings of science, on a ration which shall contain the amounts of digestible albuminoids and carbohydrates which experiments have shown to be necessary for the most economical production of beef.

A strict account will be kept of the amount of feed that each steer consumes, and an account in like manner will be kept of their gain in weight from time to time. It is believed that if we arrive at correct and reliable conclusions, these experiments will be of much practical value in that they may serve as finger-posts to point in the direction of the most profitable manner of feeding beeves here in the West.

KANSAS THRIFT.

Kansas City is to have a \$1,250,000 cotton mill.

The Lyon's rock salt mine ships five car loads a day.

Osage county farmers have shipped \$78,000 worth of butter this year.

J. T. Evans, a Coffey county farmer, raised this year 106½ bushels of corn on one acre of land.

The Iola fruit evaporator is running night and day, and has used so far 8,000 bushels of apples.

The banks of Salina have on deposit \$490,145, or \$50 per capita of the population of Saline county.

An English syndicate has bought a half interest in the Medicine Lodge sugar plant for \$1,000,000.

Stock is bringing much better prices at public sale this year than last. Feed is abundant and comparatively cheap, and stock generally in good condition. We certainly hope for better times in the near future.—*Westmoreland News*.

The alcohol sugar process has been made a success at Medicine Lodge, where 250,000 pounds have been abstracted from cane, 156 pounds being obtained from one ton of cane, which is five times as much as obtained by the diffusion process.

The apple crop in this county is the finest that has been raised for many years. First-class cooking apples are being sold from house to house for 5 cents a peck, and hundreds of bushels that would some years be worth a dollar or a dollar and a half for shipping are now being sold at the mill and made into cider that sells for ten cents per gallon.—*Burlington Republican*.

Three car-loads of sugar were shipped from the Medicine Lodge works last week. They weighed 111,200 pounds. There had been shipped previous to this, 312,300 pounds, making the total shipments up to date, 423,500 pounds. This shipment about cleaned up the mill, there being about 2,000 pounds of unbagged sugar on hand; but the centrifugals are running right along, and the little pile is growing rapidly.

Geo. E. Reynolds has just finished threshing his one hundred acres of wheat, and has 2711 bushels as the result. The land upon which the grain grew is worth \$18 per acre, and this crop is worth \$21.75 per acre. And still you will occasionally hear a farmer howling that farming doesn't pay.

There is no business man in this county who has ever doubled on his investment in any one year, or the last five years, for that matter.—*Washington Register*.

There are now 560 students enrolled at the Kansas State University, and for the purpose of comparison it may be said that the institution has no preparatory.

The Marshall County Teachers will hold a meeting at Marysville, Nov. 27 and 28th. Prof. O. E. Olin, of the Agricultural College, will deliver a lecture on Friday evening on "The Power in Reserve."

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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THE BAZAR—Mrs. L. J. Bardwell carries a complete stock of Millinery Goods. Call on her when down town and learn the particulars about the large picture to be given away.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

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REHFELD'S SHOE STORE—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dongola shoes, \$2.00.

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PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

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STUDENTS should buy their Bread and Pastry from J. F. SACHSON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 28, 1891.

NUMBER 14.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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CHARLES C. GEORGESON, M. Sc.,
Professor of Agriculture,
Superintendent of Farm.
EDWIN B. BOLTON, Captain 23rd U. S. Infantry,
Professor of Military Science and Tactics.
ERNEST R. NICHOLS, A. M.,
Professor of Physics.
NELSON S. MAYO, D. V. S., M. Sc.,
Professor of Physiology and Veterinary Science.
JULIUS T. WILLARD, M. Sc.,
Assistant Professor of Chemistry.
JAMES W. RAIN,
Instructor in English.
A. S. HITCHCOCK, M. Sc.,
Professor of Botany.

ASSISTANTS AND FOREMEN.

C. M. BREESE, M. Sc., Assistant in Chemistry.
JENNIE C. TUNNELL, B. Sc., Assistant Librarian.
JULIA R. PEARCE, B. Sc., Stenographer in Executive Offices.
E. ADA LITTLE, B. Sc., Assistant in Sewing.
WM. BAXTER, Foreman of Greenhouse.
W. L. HOUSE, Foreman of Carpenter Shop.
E. HARROLD, Foreman of Ironshop.
C. A. GUNDAKER, Engineer.
A. C. MCCREARY, Janitor.

ASSISTANTS IN EXPERIMENT STATION.

S. C. MASON, B. Sc., Horticulture, Foreman of Gardens.
F. A. MARLATT, B. Sc., Entomology.
WM. SHELTON, Foreman of Farm.
F. C. BURTIS, B. Sc., Agriculture.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

ARTIFICIAL RAIN.

BY PROF. G. H. FAILYER.

MUCH has been said recently upon rain-making and rain-makers. The United States Government has soberly undertaken to produce rain by bombarding the air, or at least to test whether rain may be produced thus; all of which attests the great interest taken in the subject by the people generally. Could rain be produced when needed, it would be a boon to a large portion of the country. In attempts to find a scientific basis for the production of rain by the firing of explosives, the various phenomena attending it have been given credit either separately or conjointly; the mixing of a layer of warm, moist air with a colder one, the jarring of the air to unite the minute drops of water in a cloud so that they will fall because of greater weight, and the well-known fact that solid particles determine the condensation of vapor are among the simpler explanations given.

In these discussions we have a most remarkable instance of the explanation of a thing before it is known to be a fact. In science, it is customary to have a substantial foundation of facts before explanations and theories. None of the phenomena of explosions seem adequate to produce any considerable precipitation over what would have occurred in the usual course, for all of these are natural agents, and some of them are most marked in our driest times. It would be just as unscientific, however, to assert the impossibility of artificial production of rain before the fact and without a full knowledge of the causes operating, as the opposite course. But until the rain has been produced under conditions that preclude its coming in the natural way, or until we see that the causes are sufficient for the result sought, conservative men may be justified in holding that a marked increase of rain-fall, artificially, is improbable. At the same time, it is both proper and profitable that the Government should make the trials it has been making. It is profitable because if it does not settle the question a much greater sum of money will be expended in misguided efforts and in times of drought by private citizens, and it is proper in order to save these misguided efforts. Should well-directed efforts prove successful, this may be learned more cheaply and more definitely by a Government bureau than otherwise.

But while legitimate attempts at rain-making are engrossing public attention, it is not to be wondered at that frauds and humbugs should arise; and some of these may be self-deceived. The result on the people who put their trust in him, and pay their money to him, is the same, whether or not the rain-maker is conscious of the humbug that he is putting upon them. Such persons usually frame their conditions in such a way that total failure seldom meets them, and since the whole thing is shrouded in mystery, they give a plausible explanation for the results. For instance, Melbourne first took four days at Goodland to earn five hundred dollars for bringing rain. A storm center was moving toward Goodland, and the Signal Service had predicted local rains in Colorado, Nebraska, and Kansas, before he began. As a result, there were clouds and a very light mist at Goodland during the first part of his trial, and clear, cold weather during the last portion of the four days. Melbourne claimed the clouds and the mist, and explained that the strong wind that first prevailed prevented his success. High winds from the south are usually followed by clouds, if not by rain, and the conditions that prevailed increased instead of decreased the

chances for rain in the natural course. Since nothing is known of what this man Melbourne does to produce rain, or indeed that he does anything, probably too much should not be said as to what conditions will work for or against him in his so-called trials. But the judicial mind will rest upon this: he who claims to be able to do that which is beyond and outside of all human experience must bear the burden of proof. An explanation of why he failed is not sufficient. He must succeed; and if it be a thing that might have occurred without his efforts, he must succeed repeatedly until it be established beyond a reasonable doubt that his agency alone produced the result. If one claims the power to produce rain, his efforts must be accompanied by rains in such number, in such a manner, and under such conditions that they cannot be mere coincidences, or the seeker after truth will refuse to have faith in him.

Melbourne's trials at Goodland, the only ones that came under the writer's observation, may be briefly summed up: He arrived at Goodland a few hours after the cessation of a slow-falling rain of nearly two days' duration. This rain shows that it can rain at that time of year in that section. After waiting four days, he began operations; that is, he went into the upper story of a small two-story building and was presumed to be at work, although no evidence of it reached the outsider. His efforts were continued for two weeks, with two or three short intervals between the several trials. Some of the time the wind blew strong; at other times it was comparatively still. As a result, there were clouds and very light drizzles, but not enough to wet the soil one-half inch in depth. At the same time the usual autumnal storms prevailed over extensive areas of the Union. It rained in Colorado, central and eastern Kansas, Nebraska, the Dakotas, and eastward. There was no evidence that the rain-maker had any influence whatever. The phenomena experienced at Goodland were apparently only a part of the general continental storms.

It is the opinion of the writer—an opinion formed from a very careful study of all facts bearing upon the Goodland case, independent of any preconceived notion—that, as a producer of rain, Melbourne is a fraud. If he can produce rain, no one will more readily acknowledge the conclusiveness of the evidence than myself. But any community that undertakes to test his power or to profit by his supposed ability should very carefully guard against paying money except under conditions that amount to a demonstration of his agency in the matter.

WE SHOULD CULTIVATE FLOWERS.

BY AVA HAMILL, '92.

"We tread through fields of speckled flowers
As if we did not know
Our Father made them beautiful
Because He loved us so."

THE cultivation of flowers is the common field in which we may all work. In other recreations of life, some persons feel as though they could not conscientiously take part, or maybe the recreations are too expensive. Every one can cultivate flowers, for they are within the reach of all; and nothing whatever harmful can we get from watching as, petal after petal, the rose opens or the pure white lily unfolds. It is such an innocent amusement; and what a pleasure it is to see new beauties every morning and evening. During the summer months, in the twilight, you watch the blossoms of the moon-plant open; by the sunlight, you notice carefully how leaf after leaf is formed; and of a morning you take equal delight in looking at the rich purple, pink,

and blue morning-glories—all glistening in dew, greetings of the coming day they send you.

He who really loves flowers is often reminded that they are always true to him, although every friend on earth has forsaken him.

The home should be made as cheerful as possible. Who dares to say that flowers do not add much to a home? They give taste, refinement, pleasure, and much to make home the place it ought to be, "the dearest place on earth." What man of thirty is not often reminded of the rose that grew at mother's door or the flowers the children used to gather for the home bouquet? The tired mother may not have time for reading or company, but what a change it is for her to cultivate flowers at odd moments.

Flowers, so cultivated, grace every festive occasion, and cheer in gloomy days; they beautify the bridal chamber and the tomb; they decorate the bride and the corpse.

TYPES OF STUDENT CHARACTER.

BY JULIA R. PEARCE, '90.

IT is with students as it is with other classes of people. Among them you find all grades, from the brilliant student at the head of his class, who not only leads his fellows in lecture room, but is also skilled in games, in society work, and at the work-bench—in fact, seems especially gifted in whatever he lays his hand to—down to the dullard who never gets a lesson without help, and then don't get it; and occasionally here as elsewhere we find the happy mean. Here are a few types to be found in our midst, and which can be studied in the hall or on the grounds at our leisure moments, if we have any.

The type which will be apt to engage our attention first as the most prominent, probably, is the popular girl. This type can be studied at almost any time of day when one has an opportunity to pass through the hall or corridors. She is usually having a good time, and any who happen to be with her at the time seem to be happy also. She is bright, usually has her lesson after a fashion, and gets through the first year pretty well, but sometimes fails in the higher classes. She is pretty, and knows it, can muster about five or six beaux who belong to No. 3, 5, or 7 of this list (see description below), sometimes five or six times this number. If she has a vacant hour, and she "most always sometimes does," she comes out and stands by the radiator until No. 3, 5, or 7 which ever it happens to be, comes along. Or if not that, then she and two or three of her dittoes have a loud time in the study. This species of student (?) sometimes manages to graduate, but usually the more pronounced sorts seldom get beyond the second year.

No. 2 is the plain, methodical student. He is seldom conspicuous either in classroom or in shop. He is usually slow in arranging his thoughts, but when he does get them fixed they are just about right. His essays are prosy, written on prosy topics. He is seldom on the program for Society exhibitions, but has surprised his friends by appearing on the list of under-graduate speakers. In due time he completes the course, marries the popular girl above referred to, and either settles down to a prosperous, happy old age or becomes President of the United States.

No. 3 is from the city as a rule. He always smokes cigarettes, and occasionally walks down the hill with No. 1 of this list. He is smart, knows more than he means to tell, and has plenty of money, which he wants the fellows to understand. He sometimes stays a year or two, but seldom gets higher than the second year.

No. 4 is a quiet, unobtrusive student. She is neatly dressed, and usually sits at the window with her book in a graceful position which will be apt to "take" with passers by, and tries to look

studious all the afternoon. Her mind has been a vacuum all the while. She didn't think a thought out, the whole time she sat there. She walks out on nice evenings, with her book in her hand, and saunters down the road in a picturesque way and looks well with the rest of the scenery. She doesn't amount to much as a student, so we won't spend much time discussing her.

No. 5 is the brilliantee who rides through the course in a glorious style. He never studies any, but always comes through a recitation with flying colors. He has time for everything but his lessons. These he can bring up at any time, usually the night before examination. He is an orator, a musician, "waltzes sublimely," is a favorite with the popular girl, and usually stands well with the professors. He is a success at anything and everything he undertakes. A brilliant career in after life is predicted for him, but he usually flattens out after graduation and is heard of no more—or perhaps he accepts a sub-position under his slow-going classmate, No. 2.

The busy, socially turned student is the next type. This class may be divided into two species, the dancing or social club student and the Y. M. C. A. student. Both of them are too busy with committees, arrangements, meetings, etc., to have time for study. They study some, of course, for policy's sake, and usually manage to keep off the low-grade list.

Now we have not mentioned all the types to be found among us by any means. Of course, there are many grades between those given and many entirely different ones which we have not the time to give even a passing notice. We will leave them for each student to classify for himself.

MECHANICS FOR THE FARMER.

BY J. A. ROKES, '93.

A VISIT to any one of nearly one-half of the farms of this country will bring before the mind of the casual observer poorly constructed granaries, corn-cribs, and stables.

The farmer felt that he could not afford to hire a carpenter to erect these buildings for him, and lacking a knowledge of the principles of carpentry himself, he has probably wasted enough lumber to have paid for the assistance of a competent workman, and has, as the result of his labors, instead of neat, water-proof buildings, leaky granaries, and barns that are, at the best, but poor shelter for his stock.

He is thus subjected to an additional yearly expense in wasted grain, and in the extra amount of food eaten to supply the want of proper shelter for his stock.

When his plow becomes dull, or if he breaks the simplest part of the mechanism of his mowing machine, he is obliged to go to town and secure the help of the man at the forge, thus losing, aside from the blacksmith's fee, his time in going to and coming from town, and in the busy season time is an expensive article.

While the amount lost by the farmer's not being capable of doing a good job of carpentry for himself may seem small at first, if he will stop to count the cost of wasted time and lumber, spoiled or wasted grain, and the extra expense of keeping poorly sheltered stock, or the cost of hiring an artisan every time he wishes to build a new shed or repair an old one, he will find that it amounts to a considerable sum. Indeed, it often amounts to the difference between profit and loss, thus deciding whether or not, in that particular case, farming is a failure.

At any rate it is a subject worthy of careful thought in deciding as to what kind of an education to give the boy that intends to make farming his profession.

I believe that the successful farmer of the future must possess a good set of carpenter's and black-

smith's tools, and a fair knowledge of how to use them.

THE ALCOHOL PROCESS.

BY PROF. G. H. FAIRYER.

WHILE attention is being drawn to the alcohol process of sugar manufacture, it may be well to consider just what the process is, and what is accomplished by it. Some seem to think that this new process is to supersede the diffusion process. This is a mistake. The alcohol is used after the sugar has been extracted by diffusion and concentrated to a thick syrup. The bane of sorghum syrup and of sorghum sugar-making has been the so-called gums. They have interfered with the crystallization of the true cane sugar, and have probably been the source of the sorghum taste, so-called. Dr. Wiley discovered that these substances were insoluble in weak alcohol, while sugar will remain in solution. He therefore takes a syrup that has been evaporated to a gravity of 55° Brix at a reduced pressure, and instead of putting it in the vacuum pans and evaporating to crystallization, to each gallon of this syrup is added a gallon of alcohol. The gums separate out, and the clear syrup, containing practically all the sugar, is drawn or filtered off. It is then evaporated in vacuum pans in the usual way.

It may be stated on good authority that good average cane has yielded one hundred and fifty pounds of sugar to the ton, with from twenty to thirty pounds more remaining in the molasses that may be secured by re-treatment. This means fully one hundred seventy-five pounds of sugar per ton of cane. The best sorghum grown in good seasons will do even better than this. When it is remembered that our Kansas factories have given an average output in some cases of only fifty pounds, and of one hundred pounds as the highest from a ton of cane, the significance of these figures will be understood. The results above were on a manufacturing scale, and not as a laboratory trial. The alcohol is distilled off and recovered with extremely little loss, and may be used over and over again. The cheapness of alcohol, aside from the internal revenue tax, will render the process practicable on this score.

LIVE STOCK FOR SALE.

The College offers to sell some good Jersey cows and heifers, the former in milk; several head of Shorthorn cows and heifers of high merit; a handsome Aberdeen-Angus heifer in calf; and a very fine yearling Holstein-Friesian bull, bred by Mr. M. E. Moore, and out of the very best butter strains in the country. Prices are reasonable, and correspondence is solicited. Address Prof. Georgeson, Manhattan, Kans.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton, Kan.

LOCAL MATTERS.

A number of students ate their Thanksgiving turkey at home.

The foot-ball teams played a number of games on Thanksgiving Day.

Dr. and Mrs. Mayo were guests of Junction City friends on Thursday.

New students drop in occasionally, even though the end of the term be near.

Prof. Olin lectured last evening at Marysville before the teachers of Marshall county.

Mr. Harman, of the Valley Falls *Vindicator*, visited with relatives at the College yesterday.

The Farm has purchased a fine Berkshire boar from the famous breeder, N. H. Gentry, of Sedalia, Mo.

The Library has received, with the compliments of the author, Dr. J. H. Gilbert, of Lawes & Gilbert, a copy of "Lectures on Agricultural Chemistry," bound in calf.

The Chemical Department has just received an imported mill for use in the laboratory. The pattern is one in general use in Experiment Station laboratories throughout the country.

The Library is indebted to Hon. John A. Anderson for the *Record* of the Fiftieth Congress, seventeen volumes, bound, and to Senator Plumb for a like number of volumes of the Fifty-first Congress.

The names of President Fairchild and Professors Popenoe, Walters, Lantz, and Mason appear on the programme of the State Horticultural Society, which meets in annual session at Beloit on December 8th, 9th, and 10th.

Our College world was seriously disturbed this week by announcement of the suspension of four students for various periods of time, and the public reprimand of nine others, all for offenses against good order in the vulgar tricks of hallow e'en and misuse of College property, as well as injury to the good name of the College.

Prof. A. J. Cook, with Mrs. Cook, who is a niece of President Fairchild, and their son, visited in the President's family this week, on the way to California for a winter tour. Prof. Cook gave a brief but interesting talk on Tuesday morning in the chapel, referring to the mutual relations existing between this College and the Michigan Agricultural College, where he has just completed twenty-five years of service.

Prof. Willard gave the usual Friday lecture yesterday, an entertaining and suggestive presentation of the importance of carbon in the economy of our planet. Incidentally, he illustrated the advantages to the world of study in chemistry, which had brought to light the multitude of uses to which carbon is put in nature and the arts. The lecture was illustrated by a collection of specimens to be examined by the crowd of interested students afterwards.

The usual Thanksgiving evening social was attended with a very large number of pleasure seekers. After a short time spent in greetings between former students, the Faculty, and students of the present term, all passed into the Chapel where the orchestra entertained the audience with some music, after which Misses Helder and Dow rendered Wagner's "Tanhauser," a piano duet. The platform entertainment consisted of the maneuvers of a well-drilled, neatly uniformed broom-brigade. The girls did themselves great credit, proving that women are capable of learning "a thing or two" on short notice. After exercises, the band played a march, and the audience dispersed to the several rooms, where games were

played, or fruit was passed, and so the evening sped until the bell told it was time to say good-night.

The Special Session of the Society on Saturday evening last gave the Websters opportunity to entertain invited guests to the number of about two hundred, who gathered at an early hour notwithstanding the cold wave. The programme, a neatly-printed copy of which was in the hands of each guest, was made up much in the order of those of regular sessions, although possibly the Committee on Programme saw that a goodly portion of the "talent" was assigned to duty on the occasion. Be that as it may, certain it was that the session was as highly entertaining to the visitors as it was creditable to the Society.

GRADUATES AND STUDENTS.

C. A. Kimball, Third-year in 1890-91, is teaching near Clarkson.

E. G. Voiles, Second-year, drops out of classes to work on the farm.

I. B. Parker, Fourth-year, enjoyed a visit last week from his mother.

Mayme A. Houghton, '91, begins her teaching Monday next at Cleburne.

Mollie A. Stewart, First-year in 1889-90, is visiting her sister at College.

Mary E. Cottrell, '91, reports a pleasant term of teaching in Wabauunsee.

W. N. Mitchell has returned to College after a week's absence at home.

J. U. Zimmerman, student last year, attended the Thanksgiving Day social.

A. H. Hepler, student last year, has a school in the southern part of the county.

May and Lockhart Harman, Third-year students in 1889-90, greeted friends at the social.

Miss Mamie Thompson, of Wamego, visited friends at the College several days this week.

Kate H. Pierce, Second-year in 1890-91, is spending a few weeks visiting friends in Chicago.

F. A. Hutto, '85, writes from Stillwater, Oklahoma, where he is prospering as County Attorney.

O. L. Utter, '88, writes of successful work as Principal of Garden City High School with sixty pupils.

C. W. McCord, Second-year in 1890-91, visited the College yesterday. He reports successful teaching.

E. P. Smith, Third-year in 1889-90, writes from Fresno, California, inquiring about completing the course here.

W. T. Allen, Second-year in 1890-91, teaches in the Cleburne neighborhood in the northern part of Riley county.

F. A. Waugh, '91, agricultural editor of the *Topeka Capital*, spent Thanksgiving Day with his Manhattan friends.

Lucy Ellis, Third-year in 1890-91, teaches the home school at Havensville. She expects to graduate with the class of '93.

Jennie R. Smith, Second-year in 1888-89, now a student at Washburn, spends this week's holiday with her parents in Manhattan.

F. C. Holcomb, student in 1888-89, is station agent and operator for the Missouri Pacific Railway Company at Penaloosa, Kansas.

G. H. Deibler, Third-year in 1886-7, suffers the loss of his father, who died on Friday of last week at his home in Manhattan.

Miss Gertie Scott of Silver Lake, spent Thanksgiving Day with her friend, Maud Kennett, and enjoyed her visit to the College on Friday.

H. E. Robb, '88, writes of election to the office of County Surveyor in Greenwood county. The people of Greenwood will have in him a careful, conscientious, and pains-taking officer.

W. S. Arbuthnot, '91, who is attending a veterinary college in Chicago, expects to complete the course this year. He was enabled to enter the senior year by special work done here during the summer.

The following graduates graced the Thanksgiving Day social with their presence: E. H. Perry, '86, Topeka; H. A. Platt, '86, Leoti; F. G.

Kimball, '87, Manhattan; S. S. Cobb, '89, Wagoner, I. T.; Mary Lee, '89, Manhattan; Mary E. Cottrell of Wabauunsee, P. S. Creager of Jamestown, A. A. Gist of Belleville, W. W. Hutto of St. George, P. C. Milner of Topeka, Lillian St. John of Zeandale, Nellie McDonald, Bertha Winchips, Madeleine Milner, Callie Stingley, and D. C. McDowell, of Manhattan, all of '91, and the post-graduates from various classes.

Frankie Green, Third-year in 1887-8, for two years past instructor and preceptress in Chaddock College, Quincy, Ill., has been compelled by ill health to drop all duties for the remainder of the year. She is at home in Manhattan.

Gertrude Coburn, '91, writes enthusiastically of her work as teacher of Cooking, English, and Physical Geography in the schools of Menomonie, Wisconsin. She visits Chicago schools this week for information as to work and methods.

W. H. Phipps, Second-year in 1890-91, sends us the first number of *Our District School*, a neatly designed 8-page monthly devoted to the educational interests of district 110, Dickinson County, where he is teaching at present. The paper is a stylograph print, and shows him to be a good penman.

COLLEGE ORGANIZATIONS.

Student Editors, Fall Term, 1891.—Alice Vail, G. W. Wildin, and W. P. Tucker.

Y. M. C. A.—President, J. L. McDowell; Vice-President, J. B. Thoburn; Recording Secretary, B. H. Pugh; Corresponding Secretary, J. E. Thackrey; Treasurer, J. Frost.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory.

Ionian Society.—President, Effie Gilstrap; Vice-President, Hortensia Harman; Recording Secretary, Phoebe Turner; Corresponding Secretary, Laura Day; Treasurer, Eusebia Mudge; Marshal, Hilda Walters; Critic, Mary Lyman; Board of Directors, Alice Vail, Maud Knickerbocker, and Edith McDowell. Meets Friday, 2:30 P. M. Admits ladies only as members.

Webster Society.—President, W. P. Tucker; Vice-President, L. S. Harner; Secretary, A. Dickens; Corresponding Secretary, G. K. Thompson; Treasurer, W. H. Stewart; Critic, F. C. Sears; Marshal, M. L. Dickson; Board of Directors, H. Darnell, A. Dickens, D. H. Otis, W. H. Edelblute, J. M. Williams. Meets Saturday, 7:30 P. M. Admits gentlemen only as members.

Hamilton Society.—President, A. D. Rice; Vice-President, W. E. Smith; Recording Secretary, C. Abbott; Corresponding Secretary, W. J. Yeoman; Treasurer, T. E. Lyon; Marshal, J. Dougherty; Critic, C. P. Hartley; Board of Directors, I. B. Parker, C. E. Yeoman, C. P. Hartley, F. R. Smith, and C. Abbott. Meets on Saturday, 7:30 P. M. Admits gentlemen only as members.

Alpha Beta Society.—President, J. N. Harner; Vice-President, E. A. Gardiner; Recording Secretary, May Secrest; Corresponding Secretary, Onie Hulet; Treasurer, E. J. Abell; Marshal, Hugo Halstead; Critic, G. L. Clothier; Newsman, Grace Clark and J. E. Thackrey; Board of Directors, J. N. Harner, G. L. Clothier, E. J. Abell, Ivy Harner, Elizabeth Edwards, May Secrest and Grace Clark.

The Alpha Beta Society was called to order at the usual hour by President Harner. The programme was opened by a solo, "The Kerry Dance," by Jessie Whitney, Selma Lund at the organ. Prayer by C. H. Thompson. After roll-call, Jessie Whitney gave select reading, which was followed by debate on the question, "Resolved, that U. S. senators should be elected by the people." Elizabeth Edwards opened the affirmative. The constitution was framed a hundred years ago to suit the people of the time. But things cannot remain the same. They must progress as the people progress. Under the present system the majority of the people do not get the man they want. If the people elected the senator, and he was not the man they wanted, then they could not blame anyone else. Then, there would not be so much chance of bribery as there is now. Bertie Secrest, the first speaker on the negative, said that our forefathers looked into the future and formed the very best constitution possible. They saw that it wouldn't do to let the people elect the senators, as it would result in two houses built on the same basis, and just alike. We might as well have two presidents. If we trust other things to the legislature, why not this? The legislature is composed of the best men of the community from which they come, and there is not a party to be so much prejudiced in their voting. Stella Kimball, continuing the affirmative, spoke of the recent trouble in electing a senator in Illinois. If he had been elected by a vote of the people, the people do not know much about the senators. The people could be bribed as well as the legislatures. Miss Edwards does not think our forefathers had any divine inspiration. They did the best thing for their time, but the people in that time were not educated as they are now. A government claimed to be by the people should be in the hands of the people. The people know what they want. Miss Secrest thought that when the Illinois legislature finally elected their senator or they had the man they wanted. Though our forefathers were not divine, they were more unselfish than people now-a-days, and they worked for the best interests of the government. The judges cast two votes for the affirmative and two for the negative. The Gleaner was presented by E. J. Abell with the motto, "In unity there is strength." After recess, the Society listened to a duet by Martha Cottrell and Maggie Stewart, Mr. Mercer at the organ. Under informal speeches, Mr. Miller spoke of rock in the Hoosier State; Miss Palmer, of the origin and structure of mountains; and Mr. Buck of Gypsies. After news report, report of Critic, and reading of minutes, the programme closed with a trio, sung by Messrs. Abell, Clothier, and Abell. Adjournment.

November 21st.
The Hamiltons were called to order by President Rice. Roll call showed quite a number absent, accounted for by the Websters' special session down stairs and many of their members, being unable to persuade the girls that the special would make up for what its members lacked individually, had given their extra tickets to the Hamilton boys. After the adoption of the minutes of the previous meeting, C. D. Fay led the society in devotion. The programme of the evening was opened by Rogers, who delivered a declamation. H. L. Pellet then read quite an extensive essay on "Anti-gravity Machine." From the nature of the production the society was convinced of the fact, phreologically speaking, that Mr. Pellet's "imaginative bump" is certainly abnormally large. R. B. Abbot next read a short essay on "Special Work." The debate was now called, the question for discussion being, "Should a student work his way through college rather than borrow money to pay his expenses while gaining an education?" The affirmative was presented by J. Dougherty and Johnson; the negative, by J. Schiel and G. W. Doll. Mr. Dougherty was sure a man could work his way through college much easier than he could bear the responsibility of a debt hanging over him. Mr. Schiel thought that in a few years after graduating the man who borrowed to gain an education would be better off financially than the man who worked his way, since the former could spend all his time on his studies, and as a result would be better educated, and his

services would be more valuable either to himself or his employers. Mr. Johnson tried to convince the audience that borrowing money for any purpose was a bad practice, even for educational purposes; also thought that it was healthful for a student to do some physical work along with his mental exertions. His best point was that students who worked their way through college were learning the valuable lesson of how to be economical. Mr. Doll could easily see from past examples, such as Garfield and others who had borrowed money to get an education, that a man couldn't afford to work his way through college if he could possibly borrow enough money to get through without. Judges decided unanimously in favor of the negative. After recess, B. D. Haller read an essay on "Boxing," which was short but right to point. Select reading by Samuel Hogbin was heartily cheered by the Society. Mr. Hogbin's selection was a production of Bill Nye's, and from the way it was delivered everybody was impressed with the thought that there is a bright future in the elocutionary field for Mr. Hogbin if he should choose to pursue that course. C. Holsinger gave the late news in a very condensed form. Under the heads of "Unfinished" and "New Business," the Society dispensed with the week's business, besides having valuable practice in parliamentary law. At 10:30 the Society adjourned, everybody being well pleased with the way in which the evening had been spent.

J. D. R.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The teachers of McPherson attended the Arkansas Valley Association at Hutchinson on Friday last, in a body.

Ex-Senator Ingalls has accepted the invitation of the literary societies of William Jewell College, Liberty, Missouri, to deliver an address next June on condition that he is in the United States.

F. Oppen, the famous cartoonist on *Puck*, is a cousin of A. W. Teachout, of Atchison. The two were boys together at Madison, O., and hoed corn in the same row. Oppen began his artistic career in the studio of Frank Beard, whom he now excels.

The Committee on Programme for the Twenty-ninth Annual Kansas State Teachers' Association has completed its labors. It has, with a great deal of care, arranged for a programme which will be one of the most interesting ever heard at the meetings of the Association. The meetings will be held December 29th, 30th, and 31st. The usual reduction in railroad and hotel rates will be given.

The class of '94 of Midland College at Atchison has been instrumental in procuring a human skeleton for the scientific department. Each physician in the city contributed a sum towards the purchase of the skeleton and the class contributed the deficit. After chapel on the morning of the 2nd, the skeleton was formally presented. The President of the class, in a well-chosen, speech acquainted the Faculty and students with the manner in which the skeleton was procured, and, on behalf of the class, presented it to Midland.

The announcement comes from the east that the Kansas State University at Lawrence has recently received an endowment of \$91,618 at the hands of William B. Spooner, one of Boston's large and philanthropic capitalists. The money is in cash, and is deposited in New York City to the credit of the college. Oberlin College in Ohio receives a like amount. These are the largest single endowments either of these colleges ever received. As to the Kansas University, the donation is a very gratifying recognition of the high standing it has in the east.

Some weeks ago the papers stated that Prof. Blake, of the State University, had discovered a new theory explaining the rain-making process of General Dyrenfoth. This week the news goes around that "Reuben Jarvis, a teacher in the public schools of Smith Center, Kansas, claims to have discovered chemicals with which he can produce rain, and offers to enter into contracts with the farmers of Kansas for their water supply next year at prices far below those of Mr. Melbourne." What wonder the Missourians are beginning to nickname us "rainmakers!"

The Topeka Public Library was eleven years old on the 12th inst. It was started by an association of ladies when Topeka was a town of about 5,000 inhabitants. The original library consisted of 147 volumes in a single book case, the proprietors of a dry goods store kindly allowing space for it in the rear of their room. The library was open to its patrons twice a week, the ladies of the association alternating as librarians. The library has now a fine building and 12,200 volumes. It must be said, however, that the maintenance of the library cost its founders and associates years of work, and was finally made a success through the powerful assistance of the Atchison, Topeka & Santa Fe Railroad Company and its officers.

It is reported that Superintendent Fitzpatrick, formerly of Leavenworth, but now the Superintendent of the Omaha schools, has made that city a peculiar offer. The total cost of the schools of

Omaha last year was \$352,785.81. Prof. Fitzpatrick says that he would be willing to sign a contract to take the aforesaid sum of money each year for ten years, and maintain the schools, cutting no teacher's salary, and present the city at the end of the ten years with one first-class twelve-room building. He would furnish teachers, fuel, etc., for the increasing number of scholars, and ask no salary for himself, relying on the certainty of making a good thing out of the contract.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's daily practice in an industrial art; and variations from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found under OUTLINE OF INSTRUCTION:—

FIRST YEAR.

FALL TERM: Algebra.
English Analysis.
Geometrical Drawing.
Industrial.

WINTER TERM: Algebra.
English Composition.
Book-keeping.
Free hand Drawing three times a week.
Industrial.

SPRING TERM: Algebra.
English Structure.
Botany.
Industrial (Carpentry or Sewing.)

SECOND YEAR.

FALL TERM: Geometry.
Elementary Chemistry.
Horticulture.
Industrial.

WINTER TERM: Geometry completed, Projection Drawing.
Agriculture or Household Economy.
Organic Chemistry and Mineralogy.
Twelve Lectures in Military Science.
Industrial (Cooking.)

SPRING TERM: Anatomy and Physiology.
Entomology.
Analytical Chemistry.
Twenty Lectures in Military Science.
Industrial (Farm and Garden or Dairy)

THIRD YEAR.

FALL TERM: Trigonometry and Surveying.
Agricultural Chemistry.
General History.
Industrial (Farm and Garden.)

WINTER TERM: Mechanics.
Constitutional History and Civil Government.
Rhetoric.
Industrial.

SPRING TERM: Civil Engineering or Hygiene.
Physics.
English Literature.
Perspective Drawing two hours a week;
Drafting two hours.
Industrial.

FOURTH YEAR.

FALL TERM: Agriculture or Literature.
Physics and Meteorology.
Psychology.
Industrial.

WINTER TERM: Logic, Deductive and Inductive.
Zoology.
Structural Botany.
Veterinary Science or Floriculture.
Industrial.

SPRING TERM: Geology.
Political Economy.
An elective in Agriculture, Horticulture, Mechanics, or related sciences.
Industrial.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

BULL FOR SALE.

The College has a fine yearling Holstein-Friesian bull, which is offered for sale. His breeding is exceptionally good. He was sired by Consul Gerben, a bull that sold last year for \$500, and his dam is Empress Josephine 5th, which took the first prize at the State Fair in 1889 as the best butter cow there. He weighed 1000 pounds on his first birthday, and is in every respect a promising young bull. Intending purchasers should address the Professor of Agriculture, Manhattan.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

MILLINERY.

THE BAZAR—Mrs. L. J. Bardwell carries a complete stock of Millinery Goods. Call on her when down town and learn the particulars about the large picture to be given away.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. SACHISON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

O. HUNTRESS, Dry Goods, Groceries, Queensware. Free delivery. Prices always as low as good business methods will warrant. The trade of Professors, Students, and all connected with the College especially solicited.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 5, 1891.

NUMBER 15.

THE INDUSTRIALIST.

ISSUED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

MISREPRESENTATION IN PLANT CATALOGUES.

BY PROF. E. A. POPENOE.

MANY are not aware that there is a law in the Kansas Statutes, passed in the Session of 1886, to punish misrepresentation and deception in the sale of trees and plants,—a law intended not to abridge the rights of the dealers in any case, but to protect the purchaser, where necessary, as it too often is. The law provides for punishment by fine and imprisonment, and by liability to damages three times the actual loss, of the person who shall misrepresent any tree or plant, or who shall defraud by substituting inferior or different varieties, or who shall falsely represent the name, age, or class of such tree or plant.

As to the actual or possible justice of this law or of the principle implied, it is not our present purpose to speak. But a perusal of recent catalogues of dealers in plants and seeds suggests the thought that while Congress is forbidding the use of the mails to lotteries, it might also take notice of some of these seedsmen as kindred swindlers. It is true that generally the purchaser of the plants or seeds gets a tangible something in return for his money, and that often the something, if not actually what it is said to be, is at least something of value; yet there are other possible cases where the purchaser is not only deceived as to the name, but is also deceived in his reasonable hope to get something of use or beauty.

A case in point is furnished among others by the catalogue of a seedsman doing business not a thousand miles from La Crosse, Wisconsin, who twice a year sends out a catalogue of a character similarly unreliable, if unreliability consists in giving an impression calculated to mislead. The flowers and plants advertised in this catalogue are not in all cases to be avoided as weeds, to be sure, though some of them are, while from the descriptions the reader is led to think them novelties of the greatest value. So far as the illustrations are original with this dealer, they are alike unreliable and overdrawn, and do not give a correct idea of the plants figured.

In these points the dealer in question is not peculiar, but in one accomplishment in the way of descriptive deception he seems to be the "great original," so far as our observation goes. In his list of winter-blooming plants is included the well-known *Euphorbia splendens*, to be had of every florist in the country at reasonable rates. Here, however, this plant appeals to buyers in a new way. It is called by a name which has from time to time been applied, and probably with equal propriety, to every thorny exotic: "The Crown of Thorns." The description states that "On the wild, rocky hills of Judea and in the immediate neighborhood of Jerusalem this emblematic plant is found, and from there our original stock was secured. . . . The 'Crown of Thorns,' worn by our Savior, was made out of this plant, . . . and some sacred historians assert that the drink given to our Savior before his death was made from the juice of this plant."

The plant in question is a native of the Isle of France, as every florist knows, and the whole statement of the catalogue is without a shade of truth. From one, judge all. In his lists of garden seeds this dealer includes more so-called novelties than any dozen reputable seedsmen in the country, and extends the list by a large number of sorts of which his "Selected and Improved Strain" is offered. A trial of many of these seeds has shown us that in most cases there is less to expect from the "selected" or "improved" seeds of this dealer than from the average commission seeds as

sold in the corner grocery at much lower prices. One of the most highly-praised articles in the last list of this dealer is the so-called "hardy day-blooming moon-flower," which in description and figure is truly charming and greatly to be desired. But this grand novelty turns out to be a well-known pest in disguise. Its true character will be shown when it is named more properly "perennial wild morning-glory," and when it is known that it is ten times more persistent than the annual morning-glory, through its enormous perennial roots, from which the plant, like hope, springs eternal, treat it ever so harshly. An experience in a Shawnee County corn-field enables the writer to speak with assurance in this; and while it is not supposed that the purchaser of the "day-blooming moon-flower" is likely to plant it in his corn-field, it is quite likely that the plant, once domesticated, will find its own way thither without difficulty.

MAKING A HOME LIBRARY.

BY GRACE M. CLARK, '92.

SUPPOSE we are a family of manual laborers; work is plenty at our house, and money doesn't come in much faster than it is paid out for food and clothing. We want to make a library that shall give us the best returns in enjoyment and culture for the few hours and the few dollars we can spare for reading. We have, to begin with, the Bible and our common school books. We add a dictionary first, a good unabridged; the best is worth enough more than the second best to more than balance the difference in price, and a pocket dictionary is a very unsatisfactory affair. We have in our unabridged, besides the dictionary proper and pictures enough to amuse the children for many a rainy day, a brief history of our language and its early literature, which will afford a very interesting post-graduate course in English for our common-school graduates. The Bible, the common school books, and the dictionary make a good solid foundation for our library. When we get rested from paying for our dictionary, we get a good cyclopedia—one made for America. By putting together the historical and biographical sketches in that, we can piece up our own histories of any country we read about, till we can afford to buy their histories ready made.

The dictionary and the cyclopedia take nearly all our spare money for two or three years, but it is surprising how easily, afterwards, other books come to keep them company. Meantime, we invest in a few paper-covered copies of classics. They cost from two cents up. We try Anderson's tales for the children. We read carefully one or two of Shakespeare's plays, and, from the interest taken in them, decide at what stage in our library-making we can afford a complete set of Shakespeare, for we don't want to buy any books just for show. For a very small outlay we get a taste of a great many authors, and we can decide which ones we want to own. We keep on hand all the reputable publishers' catalogues we can get, and hold family council over them occasionally to decide what books we can afford to own.

Ruskin thinks it is a disgrace to own any books but leather-bound ones—we smiled when we read that in a much-prized ten-cent paper-backed copy of his "Sesame and Lilies." But we don't intend to fast until we can afford china dishes; neither do we intend to do without books until we can get them bound in leather. We shall consider the use of a book when we choose its dress. Our Bible and dictionary must be well bound, but our novels and poetry will do very well in cheap cambric dresses. We want our rows of books to look as nice as possible, so, when we can, we shall have

our poets dressed uniformly, and our novels, too.

We shall put up good substantial shelves, and stain or paint their edges; when they are well filled with books, few people will think whether they are home-made or came from the cabinet maker's, and the difference in the prices of the two sorts of shelves will buy more books. The shelves shall not be put much higher than our heads; for we want our books within easy reach, and the book won't stand the temperature at the top of the ordinarily heated room much better than our brain would.

We want every member of the family to have an interest in the home library, down to the smallest one who is able to talk and look at pictures. She shall have her book then, a good handsome one, taken care of just as her Sunday hat is taken care of, till she arrives at years of discretion. Then when she goes to school her inclination to tear up books won't be as strong as if her only acquaintances among books had been the abominably ugly ones of the Mother Goose sort.

If all the members of our family are not particularly in love with any one poet—and of course they won't be—we shall get a good book of selected poetry. Its contents shall be strong and pure, for the sort of poetry our sentimental girl reads will have a great influence in determining her ideas of right and wrong.

We want to have in our library always something that will really interest the hardest working member of our family. It isn't always a sign of mental weakness or moral depravity when a person goes to sleep over a classic. And if that hard worker is interested in something broadly humorous, so it be not coarse, or lightly sentimental, so it be not sickly, he is happier for the time, and he is forming a habit that may be worth a great deal to him in after years.

It is needless to say that we won't have any of the "Snag-Toothed Jim" sort of books in our home library—such books very seldom get into home libraries; they get into the pockets of boys whose homes haven't any library, or if they have, the books in it are so wearisomely good that the boy has no use for them. Mayne Reid's, Cooper's, and Marryatt's books are said to be a good antidote for the trashier sort of boys' literature, and we shall buy them for our boys if they are hardly interested in books. We shall think seventeen times before we buy a book of an agent, remembering Emerson's advice not to read books less than a year old.

We have often heard girls say, "I wish people would give me books when they give me presents." Of course it isn't nice to talk about presents that way, but we shall consider whether our girls would rather have books than anything else, and shall act accordingly.

Of course our library will grow slowly, of necessity. But that necessity is a virtue. We don't want to buy books much faster than we can read them. So our home library will be a joy forever; for it will keep growing, and we shall grow with its growth.

BASK IN SUNSHINE.—IF THERE IS NONE, MAKE SOME.

BY EUSEBIA MUDGE, '93.

WHEN the word sunshine is mentioned we at once think of the great body around which our own planet rotates, and of the warm, pleasant rays which it casts upon us, renewing the energy within us, invigorating us to greater action and a desire for better things.

But I speak of a sunshine of our own, which we all possess and can make at pleasure, and which has as much effect as the veritable sunshine, if not more in some instances. Doubtless most of you have read of Donatello's Sunshine,—the wine which had been made in his family for generations and generations, no one else knowing the secret of

its making. What a beautiful, sparkling wine it was,—well deserving the name of sunshine,—and what a delicious sensation it produced upon those who partook of it! Once having tasted it, one longed to taste again. However, our Sunshine is not Donatello's wine, but it may be likened unto it in many ways. Our Sunshine is Cheerfulness.

You all know what a pleasure it is to converse with a cheerful person, and how we, as was the case with Donatello's Sunshine, desire to have more of it. There are some people who never seem to have a care, who are always cheerful and good-natured, no matter what happens. Doubtless they have just as many real trials as their neighbor who is always borrowing trouble and looking on the dark side of life; yet they keep their troubles to themselves and do not go about complaining of this, that, and the other, but take things as they come and make the best of them.

To be cheerful does not mean that we must wear a "painted smile" on our face all the time. That grows monotonous, but we must try to be pleasant and try to make others feel so too. The "blues" is a contagious disease. We all know how depressing it is to talk to some one who is always complaining and grumbling about something. There are times when we do not feel just like being jolly and pleasant, but let us try and shake off this spirit and not let others catch the "blues" from us. There are people who have such a sunshiny nature that no one can feel depressed where they are, and how many friends these cheerful people have! If you are feeling low-spirited how much good a pleasant chat with a friend of this sort does you. You go home feeling really happy, and yet you hardly know why. But think a moment; isn't it because some of the rays of this friend's Sunshine have fallen upon you, and warmed your dormant impulses to a new activity?

So let us make our own Sunshine; and its rays, falling upon others, may do a good we never dreamed of.

MEANS OF ILLUSTRATION.

AGRICULTURE.—One hundred and eighty-five acres of land used for farm purposes, with hundreds of plots under experiment in grain, grasses, and forage crops; and illustrating various methods of culture and rotation.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general-purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs.

Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments, are valued at \$26,000.

HORTICULTURE AND ENTOMOLOGY.—Orchards containing 200 varieties of apples, 30 of peaches, 30 of pears, 20 of plums, 30 of cherries, and five of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from one to twenty years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable garden, with hot-beds and cold-frames, and experimental beds. Practice rows for student's budding, grafting, cultivating, and pruning.

Two well-planned and furnished green-houses of three rooms each, stocked with a collection of native and exotic plants.

Museum, containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$13,000.

CHEMISTRY AND MINERALOGY.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$8,000.

BOTANY.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-eight compound microscopes, four dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$3,000.

GEOLOGY, ZOOLOGY, AND VETERINARY SCIENCE.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and mollusks in the State. Kansas reptiles and batrachians, salt-water fishes, and vertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and re-agents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, including general museum, \$4,500.

DRAWING.—Models, plaster-casts, patterns, easels, and implements. Valued at \$1,400.

PHYSICS.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, Thompson's potential galvanometer, Coulomb's torsion balance, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$4,000.

MATHEMATICS AND SURVEYING.—Transits, plane-table, compasses, levels, chains, models, etc. Valued at \$1,250.

MECHANICS AND ENGINEERING.—Carpenter shop, with separate benches for tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frier, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse power Atlas engine.

Shops for iron work, with forges, vises, drills, lathes, etc. Testing machine, charts and models. Inventory of material and apparatus in both shops, \$8,300.

KITCHEN LABORATORY, with ranges, cooking utensils, dining room furnishings, dairy furniture. Valued at \$600.

PRINTING.—Office with thirty pairs of cases, large fonts of six-point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a new Liberty quarto-medium job press; a Gordon eighth medium; a mitring machine, a rule-curving machine, and a paper cutter. Value of equipment, \$4,300.

SEWING ROOMS, with seven machines, models, patterns, and cases; worth \$600.

MUSIC ROOMS, with four pianos, four organs, and other instruments; valued at \$2,000.

A LIBRARY, carefully selected and catalogued, containing over 11,000 bound volumes, and 3,000 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the daily and weekly papers from all parts of the State. Value of Library, \$20,000.

ARMORY, containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$1,000.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

NOTICE.

The annual catalogue for 1890-91 is out of print, and a remainder from that for 1889-90 will be used instead during the few months before the issue for 1891-92. The facts given apply in general to present conditions except in such particulars as are given in this issue of the *INDUSTRIALIST*. The course of study now varies slightly from that given in the catalogue, but is still open to graduates from district school courses, and from the best grammar schools.

A beautiful "Amazonian Lily" (*Eucharis Amazonia*) is in bloom in the greenhouse.

The Cadets gathered in large numbers on the range yesterday afternoon for target practice.

Mrs. Kirshner went to Salina on Tuesday to visit for a few days before returning to Kansas City.

The College is represented in the Oneida Farmers' Institute by Professors Lantz, Hood, and Georgeson.

Sec'y Graham will lecture on Friday evening next before the Riley County Teachers' Association at Randolph.

Mr. Cy. Thurman, representing the Geo. R. Dickinson Paper Company, of St. Louis, paid a visit to the College yesterday.

The classes in Horticulture have made cuttings of many varieties of grapes and ornamental plants, and are now engaged in grafting apples.

Judge Abbott, of Garden City, called upon his three children at College, this week, and gave a short talk in Chapel Monday morning.

Prof. Rain's classes were glad to greet him again on Monday morning. He was detained a few days in Ohio by symptoms of an attack of fever, but is well again.

Major Cole, now conducting a series of meetings in Manhattan churches, took charge of the chapel exercises yesterday morning, and interested the students by some earnest words of encouragement and exhortation.

Mr. A. A. Cottrell, of Wabunsee, was present at the Alpha Beta exhibition last evening, and this morning visited various departments of the College, showing all his old-time interest in the industrial features of the institution of which he is a liberal patron.

Mr. F. P. Baker, of *Commonwealth* fame, visited the College on Thursday in company with Mr. L. R. Elliott. He expressed surprise and admiration at the extent of industrial training provided for in the College. The new iron-working shop meets his special commendation.

We are happy to learn that Mr. Cottrell, of the Manhattan Agricultural College, son of A. A. Cottrell, of Wabunsee, has been employed as Superintendent of Vice President Morten's farm near Poughkeepsie, New York. Boys, take notice! Mr. Cottrell is a graduate of the Agricultural College, and thus he gets a good situation.—*Westmoreland Recorder*.

The Tenth Annual Exhibition of the Alpha Beta Society, held last evening, was pronounced their best for several years. There was throughout a tone of high order in the productions. The freedom from the tendency to ridicule, which has been growing, deserves commendation. The address was given by Geo. L. Clothier, on "Modern Democratic Tendencies;" the debate was by Ivy F. Harner and E. J. Abell, on the question, "That the State Should Provide Work

for the unemployed." Orations were given by Kate Oldham, on "The Ruins of Time;" and May Secrest, on the changes of "Six Hundred Years" of the past, and briefly forecasting the probabilities of the next six hundred. C. H. Thompson presented the Gleaner. The music, under the direction of Sarah Cottrell, consisted of a male quartette, "The Moon is Brightly Beaming;" chorus, "Come to the Mountain;" vocal solo, "Anchored," by R. A. Clark; "The Spelling School;" quartette, "Musical Museum;" and sextette, "Come to Me, Gentle Dreams." A tableau, "The Finding of Moses," and a shadow pantomime, M. Maude Gardiner, Committee, gave pleasing variation.

The Fifth Division of the Third-year Class entertained the audience in chapel yesterday afternoon. The speakers and topics follow: A. F. Neimoller, "True Manhood;" Edith McDowell, "Inequality;" L. Olmstead, "Objects and Limits of Science;" Eusebia Mudge, "What Might Have Been;" H. L. Pellet, "The Volunteer Soldier;" Nora Newell, "Are We a Frivolous People?" C. F. Pfuetze, "Russian Nihilism;" J. A. Rokes, "The American Flag."

GRADUATES AND STUDENTS.

Emma Secrest, '89, attended the exhibition.

S. C. Harner, '90, was seen in the audience at the exhibition.

E. H. Kern, '84, writes of his election as Surveyor of Jewell County.

R. A. Clarke, in Second-year classes, drops out of College this week.

L. H. Simmons, Third-year in 1887-8, is re-elected Surveyor of Sumner County.

Alice E. Abbott, Second-year, has been obliged to go home on account of ill health.

Lucy Davidson, Second-year in 1890-91, is visiting her classmates.

J. D. VanDeventer, '86, is in the office of *Sports Afield* at Denver, Col.

Hattie Noyes, '91, writes of a pleasant winter's teaching in a small school near Wabunsee.

G. A. Browning, Third-year in 1890-91, came up from Wamego to attend the exhibition.

The *Nationalist* announces the marriage of Miss Belle Selby, '82, to Mr. J. M. Curtis, of New York City, on Monday, November 30th. Mr. and Mrs. Curtis sailed for Europe Wednesday morning.

Eben Blachly has so far recovered from the injuries received by the accidental discharge of a gun some weeks since that he is able to be outdoors. He was one of the appreciative audience at the Alpha Beta exhibition.

Miss Lillie Harkins, of Brookings, Dakota, who took a special course in household economy at the College two years ago and also last year, passed through Wednesday on her way to California. She expects to spend the winter there.—*Nationalist*.

THE WEATHER FOR NOVEMBER.

BY PROF. E. R. NICHOLS.

The mean temperature for November, 1891, was 38.6°, which was 0.87° below normal. There have been eighteen warmer and fourteen cooler Novembers in the last thirty-four years; the extremes being 45.65° in 1860, and 31.09° in 1880. The highest temperature for the month was 86° on the 6th; the lowest, 8°, on the 17th.—a range of 78°. The warmest day was the 6th, the mean for the day being 67°; the coolest day was the 17th, the mean being 14.75°. The greatest range for one day was 43° on the 6th and 10th; the least, 6° on the 14th. The mean temperature of the observations at 7 A. M. was 30.13°; at 2 P. M., 48.83°; at 9 P. M., 37.90°. The mean of the maximum thermometer was 51°, of the minimum, 27.1°; the mean of these two being 39.05°. The first snow of the season fell on the evening of the 12th.

There were fifteen cloudless days; five entirely cloudy; four more than two-thirds cloudy; and six more than one-third cloudy. It was foggy on the mornings of the 4th and 15th. The atmosphere was smoky on the 7th and 30th.

The mean barometer for the month was 28.929 inches, which was 0.11 inch above normal. The mean at 7 A. M. was 28.962 inches; at 2 P. M.,

28.9 inches; at 9 P. M. 28.927 inches. The maximum was 29.509 inches at 2 P. M. on the 17th; the minimum was 28.41 inches at 7 A. M. on the 27th, a range of 1.099 inches.

The rain-fall was 0.255 inches, falling on the 2nd, 12th, 14th-15th, 20th, and 22nd. This is 1.14 inches below normal. The highest rain-fall for November was 7.83 inches in 1879; the least, none in 1872.

The wind was from the southwest twenty-two times; north, nineteen times; northwest, seventeen times; east, fourteen times; southeast, nine times; south, six times; northeast, twice; west, once. The total run of wind for the month was 7,938 miles, a mean daily velocity of 264.6 miles, and a mean hourly velocity of 10.68 miles. The highest daily velocity was 529 miles, on the 11th; the lowest, 64 miles, on the 24th. The highest hourly velocity was 36 miles, between one and two o'clock on the afternoon of the 30th.

The tables below give a comparison with the preceding Novembers:—

November.	Number of rains.	Rain in inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	9	0.69	33.81	58	11	28.77	29.20	28.30
1859	2	1.20	45.43	84	10	28.77	29.20	28.30
1860	4	1.58	36.33	68	10	28.77	29.20	28.30
1861	2	0.70	42.26	74	16	28.77	29.20	28.30
1862	3	1.70	43.42	72	23	28.77	29.20	28.30
1863	4	2.23	38.61	68	1	28.77	29.20	28.30
1864	4	1.61	36.20	58	10	28.77	29.20	28.30
1865	3	1.37	45.65	81	20	28.77	29.20	28.30
1866	2	0.49	44.48	96	7	28.77	29.20	28.30
1867	5	2.17	38.08	62	16	28.77	29.20	28.30
1868	5	1.19	36.88	65	20	28.77	29.20	28.30
1869	2	0.13	44.80	74	17	28.77	29.20	28.30
1870	5	1.96	36.90	72	4	28.77	29.20	28.30
1871	0	0.00	33.68	70	2	28.77	29.20	28.30
1872	1	0.82	41.63	79	12	28.77	29.20	28.30
1873	5	2.12	38.59	78	3	28.77	29.20	28.30
1874	3	0.34	35.97	70	—	28.77	29.20	28.30
1875	2	1.75	37.15	70	0	28.77	29.20	28.30
1876	6	1.90	38.70	65	2	28.77	29.20	28.30
1877	2	1.90	43.44	75	15	28.77	29.20	28.30
1878	6	7.83	42.72	70	15	28.77	29.20	28.30
1879	4	1.97	31.00	67	7	28.77	29.20	28.30
1880	3	1.86	39.24	64	7	28.77	29.20	28.30
1881	3	0.95	40.56	79	15	28.77	29.20	28.30
1882	1	0.30	41.45	69	11	28.77	29.20	28.30
1883	2	1.07	41.99	70	12	28.77	29.20	28.30
1884	1	0.19	42.78	84	22	28.77	29.20	28.30
1885	2	1.24	39.03	79	12	28.77	29.20	28.30
1886	1	0.29	40.93	85	—	28.77	29.20	28.30
1887	2	0.94	37.33	78	14	28.77	29.20	28.30
1888	2	2.23	35.17	66	11	28.77	29.20	28.30
1889	2	0.91	41.94	76	16	28.77	29.20	28.30
1890	2	0.26	38.69	86	8	28.77	29.20	28.30
1891	5	0.26	38.69	86	8	28.77	29.20	28.30
Sums	106	45.89	39.56	73.21	10.24	28.82	29.30	28.32
Means	32.1	1.40	39.56	73.21	10.24	28.82	29.30	28.32

WIND RECORD.

November.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	5477	182.84	344	47	7.62	26
1890	59.8	197.93	323	51	8.25	31
1891	7938	264.60	529	64	10.68	36

COLLEGE ORGANIZATIONS.

November 28th.
President Rice called the Hamilton society to order. Secretary Abbot called the roll. E. D. Fay led in devotion. M. Findley opened the program with a very good declamation. W. E. Hardy followed with an essay, "System in Study," which was very clearly written and presented thoughts well worthy the attention of any one. R. J. Barnett then delivered a declamation very creditably. Are strikes beneficial to society? was debated on the affirmative by V. Emerick and J. A. Rich; on the negative by C. D. Adams and G. H. Dial. The affirmative claimed strikes are caused first by wages that are insufficient to support the laborer's family, and when such a strike is successful it is of great benefit to the strikers and therefore to society. Second, strikes are made to lessen the hours of labor, and when successful are a benefit to society, as it has been proved that more and better work can be done in ten hours a day than in twelve for the year through. Besides it gives the laborer time to cultivate his intellectual faculties and become a better citizen. The Revolution of 1775 was a strike on a grand scale, and it freed the Americans from the oppressive and tyrannical rule of England. In the strikes of 1875 and '76, although much property was lost and some suffering caused, there was more gained than lost in the long run, as it had a tendency to keep wages up. In the strike of '85, 25,000 men were thrown out of work for a while; it was a temporary detriment, but the point, that employees should not be turned off without sufficient cause, was gained. In countries where strikes would not be allowed by the government, as in Russia, the people lack the benefits to be derived from them, and have no means of demanding a just recompense for labor. In America, cheap foreign labor is excluded to a great extent by strikes. In railroad strikes mail and passenger trains are usually allowed to run, so society is not discommenced to any great extent. The negative replied that strikes are for the purpose in many cases to reduce the number of hours for a day's work. This brings up the eight hour question. If the eight hour system were adopted it would be a detriment to the laborer, as he would have to work more time to spend his earnings in some saloon. It is the foreigners, chiefly, that do the striking in the United States, for the Americans know that their employers would pay them more if they could afford to. Strikers always injure themselves, as they, as a rule, haven't anything laid up to supply their wants during the strike, and misery and want must follow, therefore the strike cannot be a benefit. In the case of a railroad strike, trains are stopped, produce cannot be got to market, manufactories come to a standstill, throws laborers of all kinds out of employment, and causes suffering throughout the whole country. The various industries yield only a certain amount for the labor put into them, and strikers cannot make it any more. During the strike of 1885 Pittsburgh was in a riot, buildings were burned, and anything to injure the railroads was done. In all cases the gain doesn't equal the loss in strikers, for people are thrown out of work and become beggars, tramps, and criminals, besides family troubles are more likely to arise and there is a general tendency to degradation.

from the force of want and misery. The judges, Messrs. Pope, Jones, and Axtell, gave two votes in favor of the affirmative. W. J. Yeoman presented the news of the week. Ten minutes recess followed. And then J. J. Johnson read, "Trouble about Using a Newspaper," which afforded much amusement. The society next extemporized on the question of joining the Websters in having a Moot Congress. The critic reported. Adjournment.

W. J. Y.

November 27th
When Pres. Gilstrap called the Ionian society to order last Friday quite a large number had assembled in the hall. After singing, devotion and roll call, the programme was opened by Miss Rena Helder with an instrumental solo. Following this, Miss Lynn Hartley entertained those present with a declamation, entitled "The Ridiculous Miss Bird." The Oracle for the Week was edited by Miss Rena Helder under the motto, "make the most of the present." This number contained many bright and interesting sketches, among them, "My First Experience in Cooking," "How Boys Study," "An Adventure with a Mouse," etc. Miss Hilda Walters, with her violin, again proved a source of enjoyment to the Ionians. The debate was on the question "Resolved, that the world's exhibition should be closed on Sunday." Those arguing on the affirmative were Misses Marie Haulenbeck and Bertha Sphor. They argued that it would be disobeying the commands of God. He says: "Remember the Sabbath day to keep it holy. Six days shalt thou labor and do all thy work; but the seventh day is the sabbath of the Lord thy God." He also says that the sabbath is a day of rest. But how could it be a day of rest if spent as it would be should the exhibition be attended? And, then, its being a day of rest does not mean a day of pleasure. Probably the nicer class of people would not be found on the exhibition grounds that day, and the crowd would be rough and noisy. And, then, should this be done, it would be likely to keep many from attending church. Should the laboring class desire to attend, it would be possible for them, considering the length of time the exhibition will be opened, to obtain a holiday in order to attend it. We want to show to all the people that we are a Christian nation, and in no way can we do this better than by closing the world's exhibition on Sunday. Mabel Selby and Hilda Walters supported the negative. They thought that the Bible says you may do anything on the Sabbath that is necessary. For some it might be necessary on account of limited means or time while staying in the city, to attend the exhibition on Sunday. If the Christian Sabbath is noticed the Jewish one should also be, thus taking two days out of the week. Religious literature is to be scattered over the grounds so the influence might be for the best over time. The saloons are working hard to close the exhibition on Sunday, in order to increase their own trade. It is the only day when the working man can attend. To this exhibition it is not merely the United States who are invited but all the nations of the world, and of these nations only one third of the people are Christians. The judges, Miss Mary Lee, Messrs. Kimball and Gist, decided unanimously in favor of the affirmative. Miss Marie Haulenbeck favored the society with a vocal solo. Miss Fannie Cress reported the news of the week. L. G. D.

November 28th.

The Webster Society was called to order by Pres. Tucker. Roll call. Prayer by J. Frost. Debate, "Resolved, That industrial education is the solution of the labor question," was argued on the affirmative by Mr. Little. He started out by stating what was meant by the labor question. He claimed that if the laborer were educated in his special line of work he could with little experience do that work so much better that his employer could afford to pay him better wages. If the laborer were educated he would know how to economize. Then, as invention is taking the place of labor, the man who has a general education could, if thrown out of employment by invention, seek some other occupation, while the ignorant would be helpless. Mr. Reed, the first speaker on the negative, claimed that in Germany the people were highly educated, but that the labor question is not settled there. He said that education does not insure work, and many educated men of today work for the same wages as do the ignorant. The more highly educated the laborer becomes, the more dissatisfied he is with his condition. The second speaker on the affirmative, Mr. A. J. Coen, said that the more a man learns, the more he wants to learn, and if trained in his line of work he will study to make his labor more effective and will get better wages. Mr. McCrea, the second speaker on the negative, claimed that the people wanted more ease, and that the more educated they became, the more dissatisfied and uneasy they were. Mr. Little, in closing the affirmative, said that the labor organizations have for their object the education of the people, and effects are already noticeable. Mr. Reed, in closing the debate, gave as the reason why the educated were more able to get work, that all the people were not educated. The Society decided in favor of the negative. The Society was next favored with a declamation on "Labor," by W. H. Steuart, followed by an essay on "Industrial Education," by E. A. Clark. C. R. Pierson then gave a declamation, followed by an essay, "A Trip Across the Plains," by H. N. Farris. The next thing on the programme was the Reporter by J. W. Hartley. Mr. Pugh followed with a very interesting and instructive discussion on the "Unicycle." E. R. Burtis was unanimously elected an honorary member of the Society. Adjournment at 10:45. D. H. O. Cor. Sec'y. pro tem.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The schools of Scandia have closed for the second time this season on account of diphtheria.

Midland College at Atchison has 99 students, and hopes to enroll another one before the close of the year.

Salina Normal School opened its winter term with nearly two hundred students.

The colored people of Leavenworth are raising funds to purchase a large flag for their school-house. It is proper to float the stars and stripes over every school-house in the land, yet everything ought to come at the right time. A good "Webster" in every class-room does more good to the "country" than a flag on the roof. Is the colored school well equipped with maps, globe, apparatus, library, etc.? Even patriotism should be practical.

Are there not some boys running about town who had better be in school? Don't allow them to follow their own inclinations. So far as school is concerned, don't for a moment think that because a child dislikes attending school, that it will be a waste of time to compel him to attend. It is more than a waste of time to allow him to loaf about town, contracting habits which he will deplore at some future period.—*Exchange*.

The present colors of Kansas University, maize-yellow and sky-blue, are significant, beautiful, and appropriate. The blue may be taken to represent Kansas skies, and the yellow her harvest fields of ripened grain. Everyone reared in Kansas, as I was, has often gazed with delight across her wide fields boasting in the sunlight of

her translucent sky, and knows and feels the appropriate symbolism of her University colors. If the correct shades, maize-yellow and sky-blue, be obtained, the combination is beautiful in itself as well as significant.—*University Courier*.

At a meeting of the Executive Committee of the N. E. A., held in New York City, October 30th, 1891, after a careful and deliberate consideration of the facts laid before it in relation to the next place of meeting, it was finally unanimously decided to hold the next Convention at Saratoga Springs, New York, July 12th to 15th, inclusive, 1892. The Council will convene July 8th. The Association has a cordial invitation from the educational authorities and the Citizens' Associations of Saratoga, from the State Department of Public Instruction, and the Council of City and Village Superintendents of the State. The Trunk Line Association of Railroads has granted a rate of one, the lowest, first-class, limited fare, plus two dollars (membership fee) for the round trip. The two dollar membership fee is to be collected by the railroad and paid to the Treasurer of the Association. State Managers will be appointed in a few days.

Baker University is a little better this year than last. Improvements have been made in every department. This is as it should be. But there is one corner of our institution that seems to have been utterly neglected. It is worse, instead of better, than last year. We refer to the chemical laboratory. The biological laboratory is finely equipped; the physical apparatus is sufficiently ample for the more pressing needs of the work being done, but the chemical laboratory is entirely unable to meet the demands made upon it. It is in a poor room, poorly furnished, and appliances so crude as to interfere seriously with successful work must of necessity be used. And it is nobody's fault. To get something for nothing is impossible, even at Baker. But it is a great pity that the chemistry classes are so decidedly handicapped. Satisfactory work is impossible, and passable work is hardly to be expected with such surroundings. There is complete absence of any incentive to effort in the equipment of the laboratory, or rather its lack of it, and so no inducement to extra or original work. That this condition needs reform is self-evident.—*Baker Index*.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's daily practice in an industrial art; and variations from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found under OUTLINE OF INSTRUCTION:—

FIRST YEAR.

- FALL TERM: Algebra. English Analysis. Geometrical Drawing. Industrial.
- WINTER TERM: Algebra. English Composition. Book keeping. Free-hand Drawing three times a week. Industrial.
- SPRING TERM: Algebra. English Structure. Botany. Industrial (Carpentry or Sewing.)

SECOND YEAR.

- FALL TERM: Geometry. Elementary Chemistry. Horticulture. Industrial.
- WINTER TERM: Geometry completed, Projection Drawing. Agriculture or House hold Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking.)
- SPRING TERM: Anatomy and Physiology. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy.)

THIRD YEAR.

- FALL TERM: Trigonometry and Surveying. Agricultural Chemistry. General History. Industrial (Farm and Garden.)
- WINTER TERM: Mechanics. Constitutional History and Civil Government. Rhetoric. Industrial.
- SPRING TERM: Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week; Drafting two hours. Industrial.

FOURTH YEAR.

- FALL TERM: Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
- WINTER TERM: Logic, Deductive and Inductive. Zoology. Structural Botany. Veterinary Science or Floriculture. Industrial.
- SPRING TERM: Geology. Political Economy. An elective in Agriculture, Horticulture, Mechanics, or related sciences. Industrial.

MANHATTAN ADVERTISEMENTS.

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SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

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PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

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E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 12, 1891.

NUMBER 16.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

RADICAL INNOVATIONS PROVING BENEFICIAL TO THE ARMY.

BY PROF. EDWIN B. BOLTON,
[Captain 23rd Infantry U. S. Army.]

WHILE marvelous inventions and improvements in arms, ammunition, and equipments have been made, revolutionizing the art, though not the science, of war, very many innovations have been quietly progressing in the qualifications, personnel, and supplies of our army, which, though not less important to us as a nation, seem to have been unnoticed amid the more general and costly changes affecting the armies of the world. An ex-soldier of ten years ago would now stand aghast at the wonderful revolutions in the past five years. It used to be the custom to pack soldiers in their barracks, like sardines in a box, without regard to, or, probably, thoughts of, the number of cubic feet of breathing space requisite for the health of each man; now ample, large rooms, having high ceilings, with best of ventilation to each room, are being built at all permanent posts. Sanitary regulations, though thoroughly executed, were of considerable inconvenience, and, in many instances, the true principles positively misapplied—old barrels were sawed in half for tubs, placed in an out-house or tent, and filled with cold water drawn in carts from the creek, for ablutions each week; now each post has its system of water works and sewerage, and each barrack its bath rooms, containing a sufficient number of tubs supplied with hot and cold water, sanitary closets, comfortably heated in winter, and lavatories to each squad room. The beds used to be iron bunks with hard wooden slats, ticking filled with straw, and a couple of blankets; now the bunks have woven-wire bottoms, hair mattresses and pillows, bed sheets and pillow cases, and mosquito bars to fit snugly over the bunk tops, if needed—all furnished by the Government, free gatis. The clothing used to be of inferior quality, ill-fitting, and the same material for summer as winter, for a northern as well as southern clime; now, the material is excellent and well fitted, coarse, though strong stuff, doe-skin for trousers and fine cloth for blouse; and linen collars with black cravat, are not only allowed, but actually issued to the men.

The cooking used to be done by some member of each company detailed for ten days at a time, and no vegetables constituted a component part of the ration; now a general mess, with all modern conveniences, is being established at each post, and the best cooks in the command are permanently detailed, with extra pay, to do the cooking; and one pound of vegetables is added to the daily ration of each man; the number of ounces constituting a ration of bread has also been increased.

Formerly the soldier used to gamble a great deal in the club room of the post trader's saloon, or while his time away in idleness, at leisure moments, about the quarters or in the towns adjacent; now he has reading rooms with books, newspapers, periodicals, etcetera, to read and improve his mind; gymnasiums to practice in; amusement rooms, called canteens, all post trader's stores have been or are rapidly being abolished, in which are to be found all sorts of games for innocent amusement; also refreshments (no ardent liquors) and other needed articles usually kept heretofore for sale by post traders. The men run these canteens themselves, and pay only a percentage over cost sufficient to defray expenses. No gambling, improper language, or boisterous conduct is ever permitted. Formerly a rigid inspection of arms, equipments, persons, and barracks was required every Sunday morning, and the men had to be present to answer to a tattoo

roll-call about half-past nine o'clock every night. Now the inspection is required on Saturdays, and the tattoo roll-call has been abolished, thus affording more liberty and latitude to the individual. Formerly any person of sound mind and physical constitution between the ages of sixteen and thirty-five years could enlist for five years, and no shorter period; but could re-enlist at the expiration of each five years with increase of pay at each enlistment, and when disabled, or too old to serve longer, he was sent to the soldier's home or discharged on a pension. Now the limits are between sixteen and thirty years of age; but the applicant must furnish satisfactory evidence of good character and standing in the community, besides his physical requirements, before he can be accepted; but in one year he can purchase his discharge if he does not like the service; in three years he can have a three-months' furlough on full pay, and his discharge sent to him at his home if he does not wish to serve out the five years' enlistment, or he can continue re-enlisting and serving his periods of five years till he shall have served thirty years and then be eligible on his own application to retirement from active service on three-fourths' pay.

All new recruits who are recommended by their company commanders are required now to attend school as a military duty. The session is from the last of September till the first of May each year, and the hours of attendance are in the day time at such times might be devoted to any usual military duty. The teacher is required by law to be a soldier; but the class of soldiers now in the service are not qualified to teach, or are not successful, as a rule, in their teaching. Efforts are being made to get Congress to authorize the enlistment of a corps of teachers, in which event many prominent normal school principals are of the opinion that many of their graduates will gladly enlist as teachers, knowing they can purchase their discharge in one year, or claim it in three years, and knowing too, that they will be excused from other military duties.

The Secretary of War has recommended in his annual report of this year that the age of enlistment be limited to the years between sixteen and twenty-five or even less, and that save in the case of exceptionally promising non-commissioned officers, no re-enlistment be permitted; and that at certain times all non-commissioned officers who desire it, have an opportunity to be examined for appointment as Second Lieutenant, with selection of those who stand highest in every respect. I deem these recommendations the most promising of all the reformatations yet inaugurated, and sincerely hope, for the best interest of the service, that Congress will adopt them by speedy enactments; for, by this means, the army will soon be composed of the best element of young men—graduating each year, like colleges, a class of well-drilled soldiers whose experience will be of incalculable benefit in the event of war.

All of the above-mentioned innovations are now beginning to prove of great benefit. The disreputable element which has heretofore brought disrepute and shame on the army is being rapidly weeded out, and excellent young men are beginning to enlist. Indeed, I know of no better vocation today for an unencumbered young man to engage in than to enlist in the regular army. He will get at least three years' good schooling, dress well, live well, draw good pay, be well taken care of if sick, see much of the world, become a thoroughly trained soldier,—who always makes the best of citizens,—and at the end of five years' service can have saved up \$500 of his pay to begin that business the five years' service has given

him time to reflect on, and make up his mind that he wishes to engage in, when discharged. It may be, too, that he has striven for and attained a commission in the army before the expiration of his term, as many others have done.

THE TYPICAL FARMER.

BY W. E. SMITH, '93.

ONE may travel in almost any direction and observe a wide difference in the habits and customs of the occupants of the farms. One individual seems to lack system and method in every thing he undertakes. His farm utensils are not sheltered, but are promiscuously scattered about the premises. The front yard is decorated with plows, carts, mowing machines, harrows, and sleds, as he has a liking for keeping his tools where they will be handy. When he starts to the field for a job of work, it matters but little to which he attaches the team, as each is nearly equally well suited to all kinds of business. The principal crop cultivated and harvested is a crop of weeds. He cannot get time to repair his fences, consequently the cattle have annoyed both himself and neighbors all summer. He is altogether too busy to go to the store to purchase a few yards of calico for a dress for his wife, or some needed groceries for the family; but can always leave his business with the hired hand long enough to go for a plug of "Bagley's Best Tobacco," and that is so exhausting and tiresome to his physical constitution that he is inclined to chew and spit two or three hours, and talk of the wonderful improvements he is going to accomplish by and by.

On the other hand, the real farmer displays neatness and order. His premises are tidy, adorned with trees and flowers; the buildings and fences denote thrift and prosperity; and the fields are filled with vegetation, rewarding the labors of the husbandman with abundance. By making his occupation a study, adopting plans, methods, systems, and turning his thoughts as well as hands to his business, he has made farming successful and its pursuit pleasant.

He has learned that it is just as important to keep account of the labor outlay, and all expenditures connected with the farm, as in all business transactions. By this means he can readily tell which crop pays him best, what it costs, and what he has raised at a loss.

We find that he does business upon a strictly cash basis, that he always has money on hand for the purchase of such supplies as are required for the proper conducting of his farm, also to be ready to take advantage of any good trade which may develop in the direct line of his work.

The typical farmer is one who prefers to mind his own business rather than to pay some one else for doing it for him. He is not reluctant to pick up all the information he can by association with others. He is therefore a worker and a student, not of books alone, but of good agricultural papers; of experiment stations and their work; of the work of other farmers, successful and unsuccessful; and is never too busy to attend institutes, agricultural and horticultural meetings of all kinds, that are within reasonable distance of his home.

He studies the markets for the purchase of supplies as well as the sale of his products. And by this means he is posted on the cost of each product of the farm, and is as prompt to drop those that do not pay as he is to try something new, that his judgment tells him promises good returns.

His spare time in the winter is not spent at the village, carving store boxes and arguing politics, but at home, getting his implements, fences, and buildings in good repair; thinking and planning in regard to the next year's work; and long before spring comes he knows what he is going

to plant on each field, and where the seed and labor are to come from. When his ground is ready to plant, he doesn't wait for some particular phase in the changes of the moon, but plants it at once, and in due time harvests it.

If his corn only yields him twenty or thirty bushels per acre, or his wheat twelve to fifteen bushels, he knows he must get more than that or be bankrupt in time. He can tell what it costs to raise a bushel of corn or wheat, and therefore comes to the conclusion that he must increase the yield or lower the cost of cultivation per acre; and as the latter cannot be done, the one and only course to pursue is to produce more by more thorough preparation of the soil for planting and better care for the growing crop. To do this, he cuts down the number of acres cultivated to the number he can thoroughly attend to, and then aims to obtain the greatest results, or know the reason why.

Instead of pitching into heavy hard work with the idea that it is the only way to success, he depends more on his skill, industry, judgment, and brain work, and thus reaps greater profits from the farm.

VETERINARY EXPERIMENTAL WORK.

BY PROF. N. S. MAYO, D. V. S.

OCCASIONALLY there appears in some newspaper devoted to agriculture or stock-raising, criticisms of the veterinarians or the veterinary department of agricultural colleges or experiment stations, because they do not furnish practical remedies for common ailments of stock. In other words, they are criticised for not issuing bulletins replying to questions and giving remedies similar to "veterinary department" in many agricultural papers. While the criticism is well intended, the writer does not probably take into consideration the various obstacles which make such a course very unsatisfactory and of little practical benefit.

The first objection to such a course is that veterinarians must depend upon descriptions written by those not familiar with disease, and who have not the faculty of describing symptoms with any degree of accuracy. As an instance, a person may have a horse in severe pain and struggling violently, and immediately writes for something to cure colic. All the veterinarian can infer is that the horse is suffering intensely and cannot tell whether the horse's brain, feet, or internal organs may be the seat of the disease. I have seen horses with inflammation of the feet, suffering intensely, present the ordinary symptoms of spasmodic colic. The real nature of the disease could only be determined by a careful examination and a study of symptoms that would certainly be overlooked by an ordinary observer. No one will doubt that it is more difficult to diagnose in dumb animals than in the human family, yet few persons will admit they are able to diagnose disease in any one but themselves, and most medical men would question their own diagnosis.

In making a diagnosis of animal diseases, it is often necessary to consider the age, sex, and physical condition of the animal, its surroundings, food, work, color, and temperament, nature of the pulse, respirations, temperature, and other phenomena which are usually overlooked. Thus the first, and perhaps the greatest obstacle, is the difficulty and uncertainty of depending on others for a description of the disease.

After the veterinarian has read the lines, and between the lines, and guessed at the condition of the animal, he usually gives a "shot-gun" prescription—a mixture of various remedies—in the hope that some will do good; and in making out his prescriptions he must be careful to give only such remedies as he knows will be reasonably safe in inexperienced hands. If he has been able to diagnose the case definitely and correctly, it is often impos-

ible to prescribe remedies which he would use in his own practice, because of their dangerous properties.

Then, too, there is the absence of the personal supervision of the case, the care of the animal, and the change in treatment, with the varying conditions of the disease. Sometimes a remedy which proves very successful in one case will not benefit an apparently similar case, and in ordinary practice circumstances arise which require a change of treatment in nearly every case of the same disease. Then, also, the food, hygiene, and nursing of the sick animal may be more important and have more to do with rapid recovery in many cases than medicines given, but these are rarely properly attended to without personal supervision.

Often there is much dissatisfaction if the animal does not recover as rapidly as the owner thinks it ought, and the veterinarian is blamed when probably the blame ought to rest on the conditions which are a natural result of such a course. Still the veterinarian's advice given in such a manner is often of much benefit to the owners of sick animals, and possibly to a few others. This is especially true in thinly populated districts where qualified veterinarians cannot be consulted, and all veterinarians at experiment stations and agricultural colleges are glad to answer such questions and give advice as far as circumstances will permit; for usually through such communications they are made aware of new diseases or new outbreaks of old diseases and are able to give valuable assistance in checking the spread of the disease.

The general line of work in the veterinary departments of the various experiment stations is the study of the causes, nature, and prevention of those contagious and infectious diseases of domestic animals which cause such serious losses to the live-stock industry—diseases which are not only more important in character, but more general in distribution, and which are more interesting to the greater numbers of stock owners.

CORRECT SPEECH.

BY NORA NEWELL, '93.

EVER since the confusion of tongues at the tower of Babel each nation has had its own language, which differs more or less from any other, and more widely differs as the locations are distant from each other. In all succeeding ages, people have been trying to learn how to talk, or, in other words, how to express their ideas. At first it was a simple matter to make one's self understood concerning the ordinary affairs of life, but when the higher faculties were awakened by the passions of man and the glories and grandeur of nature, then was felt the need of more varied forms for expression of thought; in short, man was compelled to invent a larger and more comprehensive vocabulary. The correct use of language, in all nations, marks the difference between the scholar and the boor. One thing, however, is singular: in the mingling of these two classes, the refined and elegant speech is seldom adopted by the unlettered, while frequently improper pronunciation and slang phrases drift into the language of those who by education and habit know the proper forms. Almost unconsciously do the latter fall into these gross errors. The lightning speed of our modern life drives us to quick and abrupt habits of speech. Even the tongue seems to have fallen into the dot and dash habit.

However, this is no excuse for the use of slang, which is regarded by some as very expressive, but, on the contrary, as one of our Professors has so often told us, "it but denotes a poverty of language."

The use of incorrect grammar and bad forms of speech usually arises from carelessness and ignorance in home training. Many a man has spent years of hard study, and perhaps has graduated with honor, only to be annoyed and embarrassed by the thoughtless use of some expression which but too plainly indicates his lack of training in childhood. For this unexcusable carelessness there is but one remedy: firmly resolve to cease the use of these improper forms in language no matter how great the temptation to employ them.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

A heat will be run in the foundry next week.

Prof. Nichols has completed the repairs to the dynamo, and will make an experimental run one day next week.

Mr. Jenness, assisting in the revival meeting in Manhattan, led the Chapel exercises on Wednesday morning.

Prof. Lawrence, of Colorado Agricultural College, plans a visit here during the holidays, chiefly to inspect the new Iron Shop.

The Museum has received, through the kindness of Capt. Morrison, some fine specimens of crabs and oysters from near Baltimore.

The classes in Horticulture were in charge of Assistant Mason during Prof. Popenoe's absence at the State Horticultural Society.

Mrs. Mints, of Ellsworth, called to visit the college on Thursday morning, spending several hours in looking over the various departments.

Prof. Mayo has gone this week to Miami County, where an outbreak of hog cholera is raging. He will undertake experiments in this disease.

The three large classes in horticulture have been busy this week in grafting. The wax is convenient for cut fingers as well as to secure the grafts.

The Mechanical Department is preparing a set of blue-prints of wood-work drawings used in our course for the use of Delaware Agricultural College.

The Friday Evening Club, of College Hill, gave its First Annual Exhibition last night. The affair was a very pleasant one, several students taking part.

Prof. Walters and Assistant Mason furnished papers for the State Horticultural Society, though from pressure of other duties they could not attend the annual meeting at Beloit.

Most of the machinery in the Iron Shop has been belted and put through its paces in a trial run to the satisfaction of all concerned. The winter term will find all the machines in operation.

The prevalence of influenza causes serious disturbance in the routine of student life, absences of from one to four days being of frequent occurrence. It is reported that there are 500 cases of la grippe in the city.

A committee of the Faculty has been appointed to devise ways and means for an exhibit of College and Station work at the Columbian Exposition. It is safe to say, even now, that the College will do its part in the Kansas exhibit.

The growing scarcity of pine lumber makes it too expensive for the use of beginners in wood-work, and problems will in future be worked in poplar. The last carload of lumber is from Tennessee, and consists of poplar, oak, ash, and gum.

The Scientific Club held its regular meeting last evening, with the following programme: "Notes on the Species of Rocky Mountain Bee," Asst. Marlatt; "Rope Transmission of Power," Prof. Hood; "Baking Powders," Prof. Failyer; "Vinegar," E. W. Reed, Fourth-year.

The annual meeting of the State Horticultural Society, held at Beloit this week, was attended by some fifty members from various parts of the State, and the people of Beloit filled their opera house each evening with a large audience. The display of apples was one of the best in the history of the Society, Mitchell County doing itself the highest honor in a show worthy of older counties. Prof. Popenoe represented the College in all of the sessions, presenting various reports up-

on matters of horticultural and entomological importance. President Fairchild gave an address on Thursday evening upon "Horticulture in Schools, and Schools in Horticulture."

Public exercises yesterday afternoon were by the fourth division of the Fourth-year Class, with the following programme: B. H. Pugh, "In the Grip of the Enemy;" R. S. Reed, "Tendency of Corporations;" E. W. Reed, "The Real Tendency of American Civilization;" Birdie Secrest, "The Cuba of Today;" A. D. Rice, "The Past and Present of the Republic;" Ruth Stokes, "Handsome is that Handsome Does;" R. L. Wallis, "Progress Through Thought."

GRADUATES AND STUDENTS.

W. A. Anderson, '91, was in town Sunday.

S. H. Greeley, Third-year in 1888-9, is doing business in Fresno, California.

A. J. and H. V. Rudy, '91, have bought a forty-acre fruit farm near Fresno, California.

The father of C. V. Holsinger, while en route to Beloit, stopped off on Monday to pay the latter a short visit.

J. W. Yeoman, student in 1885-6, now living in Sumner County, recently had 3000 bushels of wheat burned.

Twin sons were born on December 6th to Fred Wahl, student in 1880-81, and Issola J. Embry-Wahl, student in 1883-4.

E. P. Smith, Third-year in 1888-9, writes from Fresno, California, that he may return to complete the course next year.

F. A. Waugh, '91, visited the College yesterday, on his return from the meeting of the State Horticultural Society at Beloit.

W. L. Bradford, student in 1888-9, is County Clerk of Oklahoma County, Oklahoma, with headquarters at Oklahoma City.

Secretary Graham lectured before the Riley County teachers at Randolph last evening, while Prof. White performs a like service today.

J. E. Calvin, student in 1889-90, writes from Welcome, Geary County, where he is teaching and doing missionary work for the College.

Fanny E. Waugh, '91, teaching in the Menomonic (Wis.) High School, writes of her continued interest in the College and College people.

The city papers announce the marriage, on Sunday, December 6th, of Miss Stella Leonhardt, student in 1888-9, to Mr. J. F. Swingle, of Manhattan.

Gertie Coburn, '91, writes of interesting visits to Chicago manual training schools and hospitals as helps in her work as teacher in Menomonie, Wisconsin.

E. H. Kern, '84, took part in the annual meeting of the State Horticultural Society at Beloit. Although surveyor of Jewell County, his chief business is farming.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE ORGANIZATIONS.

December 4th.

With about the usual number in attendance the Ionian Society was called to order by President Gilstrap. After the opening exercises, consisting of prayer, singing, and roll-call, the programme was presented. Ione Dewey entertained the company with an instrumental solo, "The Little Tycoon." An amusing selection, illustrating the discomfort of some European hotels, was read by Nora Newell. Florence Corbett delivered a declamation entitled, "Our Summer Resorts." The Oracle, edited by Verta Cress, had as its motto the old rhyme, "Sing a song of six-pence, etc." Some of the articles were very instructive, especially the one on the history of the K. S. A. C. Other subjects treated were, "The Ideal Ionian," "Slang," "Calm Thought," "A Summer Shower," also, the sixth chapter of the continued story. After the reading of the paper, Alta Lee rendered a vocal solo. The discussion on the subject, "Should girls learn to shoot?" was opened by Daisy Day. The young lady thought that it would be beneficial, not only as a safe-guard, but also as a means of promoting health. The exercise necessary in "gunning" would be of great benefit to those usually confined within doors. It would also aid in developing a steady arm and a true eye. Nearly all of the members of the Society took part in the discussion following. There were a few pleas for the dumb creatures who are almost sure to fall by this exercise, but the general verdict of the Ionians is that girls should know how to shoot. Hilda Walters favored those present with a violin solo, following which was the report of committees. After transacting some business and responding to the roll-call with quotations, the Society was adjourned. L. G. D.

December 5th.

President Rice called the Hamiltons to order. Roll call. The Society was led in devotion by G. A. Plasket. Minutes of the last meeting were read and adopted. Messrs. J. L. McDowell and L. W. Percell were initiated. The programme was opened with "No National Greatness without Morality," a declamation very creditably delivered by W. J. Jennings. "A hunting trip" was humorously narrated by G. Jones in his essay. It told of the accidental discovery of a subterranean cave, and on attempting to explore its depths the hunter was finally driven back by the sultry heat and sulphurous fumes of the interior. While returning to its mouth he barely escaped capture by its giant-like inhabitants who were armed with pitchforks. In his essay, "Farm Life," Mr. Broadbent described some of the familiar scenes and occurrences of farm life in a pleasing manner. Debate followed on the question, "Should students away from home be allowed to vote at the county elections," affirmed by J. A. Rokes and C. D. Lesley, and denied by W. E. Smith and C. J. Bergsland. The affirmative argued that one of the first principles of constitutional law is that every male citizen twenty-one years of age should be allowed to vote. At this institution, for instance, where the student stays nine months which includes the election campaign, if he is not allowed to vote in the county election he is practically disfranchised, as it is almost impossible for the student to go home to vote. Hence the political influence of a great number of the most intelligent citizens is lost. There are a great many students who have no home. A Negro may come into Manhattan, no matter what his business is, stay thirty days and be allowed to vote at the county election. One does not have to own property to become a citizen; and a student is just as much a citizen as the man who comes to town, rents a building, and goes into the mercantile business. The motive in coming here, whether student or merchant, cuts no figure in the qualification for voting. The negative replied that the student has no interest in the political affairs of the country, and therefore has no right to vote. He has no political judgment, doesn't know the candidates and it is an injustice to the country, as the student vote would be liable to give incompetent officers. The student doesn't gain a residence here, as he came simply to attend school. The students that like to smoke could be bought by an unprincipled politician for a cigar. If students away from home were allowed to vote, the same privilege would have to be extended to garrisoned soldiers, which would be an injustice to the community in which they live, as soldiers of the standing army are usually an unprincipled class and would elect officers of their own class of society. It is, apparently, right for a student to vote, but as he has no interest in the county politics he should not. Messrs. Hartly, Axtell, and Jennings decided two to one in favor of the affirmative. B. Simmons discussed, "Evidences of Character" as indicated by the characteristics of the eyes, nose, ears, and hair. Recited ten minutes. S. B. Johnson presented the Recorder. Some of the articles were, "An Agricultural Lecture," "A Trip up Salt Creek," "A Poem," "Making the Society a Success," A Description of the Campaign Orator, "A Supposed Story of C. E. Yeoman" (poem), "A Text from one of the President's Lectures." C. K. Peck as music committee furnished the Society with two good instrumental pieces. C. R. Hutchings gave quite an interesting budget of news of the past week. Parliamentary "rag" for a few moments. Critic reported. Adjournment. W. J. Y.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The Board of the Mary's Mission College have provided a billiard table for the students' dormitory.

Emporia College has changed its holiday from Saturday to Monday. The change went into effect last week.

Chancellor James H. Canfield of the University of Nebraska delivered a lecture before the Seminary of Historical Science at the State University of Kansas.

The Dial, of Mary's Mission College, publishes fragments from the early history of that institution. The College started as an Indian school way back in the forties and was the seat of the bishops of Kansas in 1851.

The cynic of the Atchison *Globe* says of football: "It used to be that students played base-ball in the summer, and studied a little in the winter, but now they have a winter game, and their happiness is complete."

Prof. Curtis, of the Government expedition to Texas to investigate the possibilities of rain-making, has written a report of the experiments for *Nature*. He used to be instructor in mathematics in Washburn College, Topeka, and is well-known in the State.

As an example of the way in which the West is leading the East, it may be noted that the scientific men of Ohio are to organize an academy of science. This movement originates no doubt from Prof. W. A. Kellerman, formerly of the Kansas Agricultural College, who has been recently elected to the chair of biology in the Ohio State University. —*University Courier*.

Prof. S. Z. Sharp, Principal of McPherson College and Industrial Institute, met with a severe accident at Newton, Saturday afternoon, which may necessitate the amputation of one of his feet at the instep. He had attended the Southwestern Teachers' Association, and was hurrying to catch the train. It appears that three freight trains on the Santa Fe road blocked the Professor's way to the Missouri Pacific depot. Thinking that he had not time to go around them he undertook to climb over one. Just as he was ready to jump down the train commenced to back and pinched his right foot between the draw heads, crushing the front two-thirds of the foot in a terrible manner. Dr. G. D. Bennett, the Santa Fe surgeon, was immediately summoned, and had the injured man removed to his office, where the wound was dressed. He was afterwards conveyed to Clark's Hotel. Mrs. Sharp came down on Sunday morning, and the Professor had so far recovered from the shock that she was able to take him home in the evening.

The *Western School Journal* gathers the following facts concerning the State Superintendents of Public Instruction for Kansas:—

Wm. R. Griffith, April 10, 1861 to February 12, 1862. S. M. Thorp, March, 1862 to January, 1863. Isaac T. Goodnow, January, 1863 to January, 1867. Peter McVicar, January, 1867 to January, 1871. H. D. McCarty, January, 1871 to January, 1875. John Fraser, January, 1875 to January, 1878. Allen B. Lemmon, January, 1878 to January, 1881. H. C. Speer, January, 1881, to January, 1885. J. H. Lawhead, January, 1885, to January, 1889. Geo. W. Winans, January, 1889 to date.

Mr. Griffith died while in office; Mr. Thorp was killed in the Quantrell massacre at Lawrence, August, 1863; Mr. Goodnow is living on his farm near Manhattan, and is still interested in educational work; Dr. McVicar is President of Washburn College; Mr. McCarty died at his post as President of Highland University, on September 12th, 1887; General Fraser died in Pittsburg, Pa., June 4th, 1878; Mr. Lemmon is editor of the *Republican*, Santa Rosa, California; Mr. Speer is in the banking business in Chicago; Mr. Lawhead is Superintendent of Public Instruction of the Territory of Oklahoma.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States history. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made

to begin with the first day of the term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2nd. Certificates of passing the grammar grade in any city school, with a course of study approved by the Faculty, when properly signed by the city superintendent.

3d. Kansas teachers' certificates issued by the county board of examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.

Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Sumner,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		

CITIES.

Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Salina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solomon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's daily practice in an industrial art; and variations from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found under OUTLINE OF INSTRUCTION:—

FIRST YEAR.

FALL TERM:	Algebra. English Analysis. Geometrical Drawing. Industrial.
WINTER TERM:	Algebra. English Composition. Book keeping. Free-hand Drawing three times a week. Industrial.
SPRING TERM:	Algebra. English Structure. Botany. Industrial (Carpentry or Sewing.)

SECOND YEAR.

FALL TERM:	Geometry. Elementary Chemistry. Horticulture. Industrial.
WINTER TERM:	Geometry completed, Projection Drawing. Agriculture or Household Economy. Organic Chemistry and Mineralogy. Twelve Lectures in Military Science. Industrial (Cooking.)
SPRING TERM:	Anatomy and Physiology. Entomology. Analytical Chemistry. Twenty Lectures in Military Science. Industrial (Farm and Garden or Dairy)

THIRD YEAR.

FALL TERM:	Trigonometry and Surveying. Agricultural Chemistry. General History. Industrial (Farm and Garden.)
WINTER TERM:	Mechanics. Constitutional History and Civil Government. Rhetoric. Industrial.
SPRING TERM:	Civil Engineering or Hygiene. Physics. English Literature. Perspective Drawing two hours a week; Drafting two hours. Industrial.

FOURTH YEAR.

FALL TERM:	Agriculture or Literature. Physics and Meteorology. Psychology. Industrial.
WINTER TERM:	Logic, Deductive and Inductive. Zoology. Structural Botany. Veterinary Science or Floriculture. Industrial.
SPRING TERM:	Geology. Political Economy. An elective in Agriculture, Horticulture, Mechanics, or related sciences. Industrial.

MANHATTAN ADVERTISEMENTS.

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SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

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DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequaled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.00; ladies' fine dongola shoes, \$2.00.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. SACHISON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

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THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

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E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 19, 1891.

NUMBER 17.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

TRAINING FOR PHILANTHROPY.

BY PRES. FAIRCHILD.

IS it possible to know more truly the conditions for doing good? To make the preparation of youth for life richer in experience of the world, he must handle the world he has to control, the world he is to lead.

To begin, I would show him that all successful life is embraced in the art of moving things. You will remember that terse expression of Lord Bacon, "Man can himself do nothing else than move natural bodies to and from each other: nature working within accomplishes the rest." Its far-reaching applications exceed thought. Every product of civilization brings it back again and again as we trace the process of production through the various forms of effort perfecting it; through the history of the trade, separating its motions one by one; through the stages of development that made wants to stimulate action; through the forces of nature, active and latent, which awaited the contact of elements; through the spur of pain or the tingle of joy that set in action human thought, and thus began the never-ceasing round of motion and commotion for an end.

Man produces the cotton and the corn, and boasts of his achievement as creator of wealth. What has been his actual service? Perhaps on our prairies, sometimes, he has simply turned a thin shaving of sod bottom upward with a kernel of corn dropped at intervals into the furrow. If sunshine and shower, soil and seed, came in contact, the result was a hundred fold: nature worked, and wrought out the golden harvest for her partner. Yet if, with the same motions on his part, the exact contact in proper modicum was wanting, nature had no part in the contract and her would-be partner gained no crop, no wealth, no welfare.

The art of moving the right thing at the right time into the right place, makes the whole of wealth, perhaps the whole of welfare.

I stood within the massive buildings of the nation's navy yard, watching the ponderous machinery that rolled and hammered and bored and rifled and banded and polished those huge guns that conquer peace throughout the world. As I watched the quiet motions of the men guiding the levers, I said to myself, "Surely, knowledge is power." But no; knowledge gives no power till force is coupled with it in the art of moving things. This man by his own will, a cause in himself, disturbs by a hair's breadth the equilibrium of pent-up power in nature, and the ponderous work follows his will or thwarts it. His art seems the force it controls, and his will is extended over the result; but nature wields the majesty of power and in his least blunder may crush him.

You have stood beside the clanging of the carpet loom, watching thread by thread the framing of that elegant pattern seeming to spring by magic out of the elements of warp and woof. Perhaps you have studied the machine by which pure force works on and on, repeating the design of its contriver. Automatic movement has taken the art, and only the coal stoker's motion is needed to perpetuate it.

You hold your breath with silent acquiescence in the thoughts of some born orator, whose clear-cut sentences inspire your valor or your faith. Divine eloquence wields his lips. His, too, is the art of putting things in their right places by the symbols of our common speech, the growth of a common experience. Moves you? So he does; but first he moves the things that make up thought, the words that signify them, the articulate sounds that sway the air in rhythmic waves to move the

tympanum, to agitate your nerve of sense,—to bring his mind and yours in simple contact; nature makes the valor and the faith, reacting upon his nature-made eloquence.

In all the range of human thought and action, moving things, and little things at that, is man's humble portion. The least failure in time or place or relation is failure of the whole. Thus trifles make perfection; nay, make the whole in its perfection.

Have we made this fact sufficiently plain in the drift of our training for philanthropy? Have we kept the thoughts of children and youth near enough to the elements of growth in this art of moving things? Have we clearly enough shown the part of nature in all work for human welfare, emphasizing our own meagreness except in adapting our slight motion to the facts in nature? Things as they are, in relation to ourselves, make our welfare. Our necessity, mother of invention, grows out of our inquiry into things and their relations. Contact with things develops the craving that brings exertion, and elevates happiness into knowing, not about things, but of them, in order that they may be moved to our satisfaction.—*Extracts from an address before the Society of Alumni at Oberlin College.*

SOME OF THE CONDITIONS WHICH INDUCE EARLY BEARING IN FRUIT TREES.

BY S. C. MASON.

THE production of fruit in a tree, as well as fruitfulness in other forms of life, is an indication of maturity, either natural or premature. Youth is normally the age of growth and development. When, therefore, bearing is induced in a tree at a very early age, it is usually found that the life of the tree is correspondingly shortened; but as fruit is the ultimate object, and not the prolonged life of a particular tree, early bearing is in many cases a desirable end to achieve.

Most botanists hold that the same buds which would produce additional wood growth under one set of conditions may, by being brought under other influences, be converted into fruiting buds. That is, the bud and not the tree is to be regarded as the individual. It may expand and extend its growth into a stem bearing many buds, each in their turn capable of the same development; or it may, under a higher elaboration, be transformed into the floral or reproductive organs, producing a fruit or seeds which contain the germs of a new tree.

What, then, are these conditions? This opens up a vast subject; but a few points may be briefly stated. An abundant flow of sap to the extremity of the branches will usually induce wood growth. Rich ground, deep and late cultivation, severe winter or early spring pruning, abundant rains throughout the growing season, all tend to encourage this. On the other hand, any cause tending to interfere with this free flow of sap tends to the development of fruit buds. Dwarfing by grafting on to a slower growing stock with which the cion makes an imperfect union is a familiar instance of this. Grafting cions of a new fruit on to a limb of an old tree often produces specimens of this fruit before a tree of the variety could be grown to bearing age. The work of borers at the crown of a tree, while fatal to its life and development, often induces an enormous crop of fruit at a very early age. Checking the terminal growth of young shoots in mid-summer is found to turn the sap from its work of wood forming and induces the growth of fruit buds. Girdling the trunk or ringing a limb are more violent means of accomplishing the same end. Root pruning is still another method, and many striking instances are recorded of barren trees being brought into abundant bearing by this

means. Lindley, in his volume, "The Theory of Horticulture," states that fruitfulness has been induced in the Jujube tree by simply forcing the branches into a horizontal position and holding them by attaching a heavy stone.

In exact accord with the above-mentioned methods are the results of a lack of rain in the latter part of the season. The exuberant growth is checked and the growth made is allowed to ripen up. In all these cases, it is conjectured that a more special elaboration of the sap takes place than when wood growth is specially induced, though Nature is very guarded as to the processes of her laboratory. It should be kept in mind that many of the means by which fruitfulness is induced are at the same time detrimental to the general vigor of the tree and that it is of first importance to maintain a proper balance between these forces.

It is generally conceded for our climate, where lack of rain is so common, that over pruning is to be avoided, and that the most that the orchardist should try to do is to give his young tree a proper top, and only remove the interfering limbs and such as are so crowded as to fail to admit sunlight and air. The elaborate methods of pruning and training to induce fruit which can be profitably practised by the French gardener would fail utterly in our orchards.—*Kansas Weekly Capitalist*.

MAKING MONEY TO DIE WITH.

BY B. H. PUGH, '92.

IT is astonishing to see the rampant struggle people are making for wealth today. In spite of the fact that a man at his three-score years and ten must post his books to profit and loss and take his hands off his hoardings, the American is becoming so all absorbed in the money question that it seems only a question of time till our citizens become walking coffers and money-bags. The average Yankee is sharp in a trade, and more than a match for his friends from over the Atlantic. He sees how easy he can scoop in the shekels, and once with a taste for gain he can never get enough.

It is excruciating to watch the efforts of a man with a young family and a \$500 salary trying to live up to the style of his rich neighbors. He must have his house as well furnished, set as rich a table, and drive an equal span of horses. The harder he finds it to keep up appearances the more he craves wealth, and as the result he plunges into business with all his energy, to be almost entirely forgotten till we see the account of his death and will in the newspaper.

But the most pitiable individual is the man simply making money to die with; grinding out coin after coin, not for any reasonable object, but simply to make a pile, or perhaps to have people say he didn't die a poor man. Despite this unreasoning covetousness, thousands of our citizens are giving their lives to it. They stop longer to consider the amount they gain, than the way it is gained; dead to respectability and honesty, and alive only to the fascinating glitter of gold. If money could find a tongue and name its victims among the maniacs and brain-ruined humans, the very walls of our asylums would shudder at the number of minds sacrificed to the idol of Gold.

Why will a man give up his happiness, stunt his mind, forget his relation to his fireside and fellow beings, for nothing but pelf? It is no virtue for him. No one thinks him more of a man because of his money, and worse still it is a world-recognized fact that a fortune is not a boon, but a curse to heirs. The man who does this sells himself to nobody and for nothing.

A young man prosperous in business, after passing the "have-a-good-time" stage, begins to think of laying by a small sum of money for his rising family and himself when he has reached his gray hairs. He is right to start with, but he clears the

proposed amount long before he expected; so on he goes, his business increases, and finally, when death has drawn him out of his slavery, the heirs hurry his earthly remains out of the way and grab for the property. A squabble ensues in which his fortune of \$100,000 is annihilated. \$20,000 of it goes for court fees, \$30,000 worth of the estate is mortgaged to pay the \$20,000, while the managing lawyer marries the favored heiress and gets the balance.

Lawyers exert themselves for days and nights to saturate their minds with evidence on a half-dozen different cases, then boast that a galley slave is no harder worked than a barrister in full practice. Why must he slave? Let him handle what he can, and not seek to do two men's work for the volatile sentiment of friends, or with the object of making a fortune to fall back upon when he leaves practice, for mark it, he can never resist the bewitching jingle of guineas till this "mortal coil" refuses to longer hold the over-worked spirit, or, as is often the case, till his brain withers and leaves him to fall back on a fortune that is torment rather than enjoyment.

This country would have been doubly richer had the excellent minds sacrificed to wealth been given to our public offices, and not to robbing the government and the people. But instead, their time and talent is given to amassing wealth they can in no wise use; and finally the pressure becoming too great, like a Vanderbilt, at a snap of the finger, they are hustled into another world as poor as they came into this. The man who is wringing guineas from his brain, expecting to gain public favor by his pecuniary success, is certainly basing the memory he leaves behind on very sandy ground. The men who are still in the hearts of the people are not those whose lives were given to money-getting; and, though a millionaire may be praised of the people while living, when he dies his praise dies with him.

THE SHALLOW STUDENT.

BY MARY E. LYMAN, '93.

THIS friend of ours is of perfect physique, good natured (when he wants to be), is surrounded by every advantage of life that can make it comfortable for him, and is supported by faithful Christian parents.

I am sorry to say that the more the facilities, the harder it is for him to find a nything "easy enough" for him to do.

When the summer months are coming to a close, he rather gets the idea that it would be "lots of fun to go to college; guess I'll try it." Two weeks have passed. Yes, he tried to get his lessons, and a great deal of fun along with it, too. The latter just came naturally, it seems to be in accordance with his constitution. Oh, you know it's "such hard work" for him to get all of his lessons at a fixed time it almost makes him sick. He finally manages to pull through the long siege, but he never would had it not been that every five or ten minutes he just had to think how he would arrange the wording of "that invitation" to "that girl."

However, these troubles and schemings are ended temporarily, and he goes where he can have a good time, at a social, dance, theatre, or, very rarely, to the billiard hall, frequently on the street corner. At the place most generally visited, he experiences his best times because all there is to do, if on the street corner, is to let his jaw drop.

These places of visitation, above mentioned, are so deteriorating to his character that on Sunday we find him, if not on the back seat in the church, on the nearest corner. He has wandered so far that he has gradually left everything that is pure and holy.

My friend, does this describe your condition? Perhaps you say, "I am not that far gone;

I don't stand on street corners or sit on dry-goods boxes." Allow me to say that that is the ultimate end of the career of one who does not attend strictly to business while here at school.

This is now the last week of the Fall Term. As you look back at the work done are you well pleased, and can you heartily say, "I've done to the best of my ability all my duties?" Happy are you, then, and may success crown your faithful efforts. Or, do you look with regret at the many opportunities left unimproved? If this be the case, as it is with almost all of us, let us take advantage of this experience, and when we begin the next term in another new year may we find many faithful students of the highest type.

HOME READING.

BY PROF. J. W. RAIN.

THREE important factors in a man's independence and usefulness are travel, business experience, and reading. They bring him into contact with men, and teach him the usages of the world, which is to be his workshop. As the average student has not had the advantage of the first two, his intelligence and ability depend in large measure upon his general reading. No one can do good work in any field until he has learned to feel at home there; so the more intimate and extended his acquaintance with books, the more he can learn during his college course.

Recent inquiries among a special class of students over eighteen years of age, but with meagre schooling, show several things as to the amount, quality, and direction of their reading. (The figures are obtained from the written reports of the students, without any selection on the part of the teacher).

Out of forty-eight lists handed in, thirty-one showed that the writer had read not more than twelve books; and of these thirty-one students one had read no books, three had read only one besides their school readers, six had read two, and so throughout.

In the whole number of lists (forty-eight), "Peck's Bad Boy," "Buffalo Bill," and detective stories appear forty-four times; and they are not found in the lists of those who have read the greatest number of books.

Parents cannot control the reading of their boys and girls unless they provide it, and this will cost some time, thought, and money. Too often we accept whatever may be at hand cheap. But some books we do not want them to read, and some we take pains to procure for them. What shall be the basis of our selection? One says, "My children shall not read novels. There is plenty of history, travel, and adventure." But another objects to adventures, and thinks "Kit Carson," and "Adventures in Australia," not good reading for his boys. Another will let them read the good novels, but not the bad, and so on. Is not the choice in each case to satisfy a hobby, a prejudice, or an arbitrary rule?

It is impossible to draw the line at some class of books, and adhere to the true principle, or indeed to any principle. History is good for them undoubtedly, but not the history of Jesse James, or the Johnstown flood. It is the same in all classes: some adventures are good, some bad; some travels we should read, some not; some novels we cannot afford to miss, some are trash. Nor can we accept all books "with a good moral." The average Sunday school book, of my day, at least, is not fit to read. It is not enough that the book be free from murders, obscenity, and atheism. That is a mere negative virtue. Who ever permits a child to eat "all that is not poison?" In mental as well as in physical food there must be actual nourishment if we are to make any growth.

Read, then, those books that are true. By true

Continued on page 68.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

The INDUSTRIALIST will take a holiday next week.

Mrs. White visits her sister, Mrs. Kirshner, in Kansas City.

Secy. Graham has been kept home at intervals for a week past by la grippe.

Foreman Baxter succumbs to an attack of influenza which confines him to his room.

Mrs. Hood left for Terre Haute, Ind., on Thursday, in answer to a telegram announcing the serious illness of her mother.

Prof. Walters has prepared the copy for a free-hand drawing book for the use of First-year students. It will be introduced next term.

Prof. Popenoe has been confined to his room most of the week by illness. Assistant Mason has watched over the classes in horticulture.

Professors Graham and Breese contemplate a trip to the Indian Territory during the holidays in search of material for the museum. They will be guests of Lieut. Harbord at Fort Reno.

The election of student editors for the winter term was held on Wednesday morning after chapel exercises, and resulted in the choice of Messrs. B. H. Pugh and F. C. Sears and Miss May Secrest.

President and Mrs. Fairchild will attend a reunion of the Mid-continental Association of Alumni and Former Students of Oberlin College at the Midland Hotel, in Kansas City, Tuesday, December 29th.

Professors White and Georgeson are in attendance upon a farmers' institute at Gardner, Johnson Co., this week. The people of that region always have good institutes, and this cannot be an exception.

The Kansas Dairy Association will hold its Fifth Annual Meeting on December 21st and January 1st, at Clay Center. The College is represented in its list of members by the names of Prof. Georgeson, Secretary Graham, and Mrs. Kedzie.

Profs. Failyer and Mayo make a raid upon the forests of Colorado during the vacation, hoping to add materially to the wealth of the zoological collection of the museum. The Chicago, Rock Island, and Pacific Railroad renders substantial aid to the enterprise.

The total enrollment by classes for the present term is 491, as follows: Post-graduates, 8; Fourth-year class, 40; Third-year class, 60; Second-year class, 128; First-year class, 177; "B" Division, 78.

Secretary Graham was able to greet about twenty-five graduates and former students at the third annual meeting of the Riley County Teachers' Association, held at Randolph on Friday of last week. This was one of the largest meetings that has ever been held by this Association, and the enthusiasm shown by the members present speaks well for the future.

Mrs. Kedzie left on Tuesday afternoon to attend the funeral of her mother-in-law, wife of Prof. R. C. Kedzie, of the Michigan Agricultural College. Mrs. Harriet Eliza Fairchild Kedzie was a sister of President Fairchild, known in Manhattan by a visit here when Prof. W. K. Kedzie, her son, was connected with the College. She died of pneumonia in her sixty-fourth year.

The class in farm and garden, otherwise known as "P. M.," in honor of having completed that portion of the College course, gave a banquet and literary entertainment at the Knights of Pythias hall, in Manhattan, on Friday evening.

Following is the programme of exercises: Overture, by P. M. orchestra; Toast, "P. M. Bosses," Margaretha Horn; Toast, "Cooking Industrial," Fred C. Sears; Toast, "P. M. from a Girl's Standpoint," Edith McDowell; Instrumental duet (guitar and mandolin) Jessie Hunter and Ione Dewey; Toast, "P. M. Boys," S. C. Mason; Quartette, "The Liberated Junior," E. J. Abell, M. F. Hulett, G. W. Smith, A. S. Houghton; Toast, "The Bright Side of P. M.," F. C. Burtis; Instrumental duet, Laura Day and Eusebia Mudge; Vocal solo, "Till We Meet Again," Mary Lyman.

GRADUATES AND STUDENTS.

D. C. McDowell, '91, is in the employ of the E. B. Purcell Mercantile Co.

John Frazier, Second-year in 1886-7, is Principal of Schools at Reading, Osage County.

B. H. Pound, Second year in 1889-90, finds employment with the E. B. Purcell Mercantile Company.

J. E. Taylor was called to his home in Berrytown, Shawnee County, this week, by the illness of his father.

C. A. Campbell, '91, remembers his friends with an account of winter in Colorado which will appear next week.

P. S. Creager, '91, farming near Jamestown, writes entertainingly on "Use a Roller" in the *Kansas Weekly Capital*.

H. W. Jones, '88, writes of very satisfactory work as instructor in mathematics in the Texas Normal College at Denton.

H. E. Moore, '91, writes from Portland, Oregon, of a safe journey, pleasant work, and mild weather, with no end of rain.

Phillip Hay, Second-year student, was called to his home in Junction City, Saturday by the sickness of his mother, who died early Sunday morning.

Cards are out for the marriage of R. U. Wald-raven, '89, and Maggie Campbell, Second-year in 1890-91, at Wall Street, Linn County, December 31st.

The following from the Logan (Kan.) *Republican* is news here: "D. W. Working, a former resident of Logan, and a brother of our Joe, has quit the newspaper business, and is teaching school."

W. S. Dille, Second-year in 1890-91, read a paper, on "Some of our Injurious Insects," before the Gardner, Johnson County, Farmers' Institute this week, thus spreading the good seed sown at the College.

F. A. Campbell, '90, writes from Highlands, Colorado, where he is building a home for his wife and boy, earning a fair salary, and making thorough preparation for entering the ministry of the Christian Church, which he joined six months since.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE ORGANIZATIONS.

December 11th.
The Scientific Club was called to order by President Mason. The minutes were read, and after Mr. Willard's correction, were adopted. Mr. Mariatt gave a short talk on a bee belonging to the family Andrenidae (species not known), which he found very common in Logan Valley, Utah. The bee resembled in general appearance our Italian honey bee, but in structure and detail it is very different. He found a large colony of these bees on the side of one of the country roads. For a distance of over three rods long and one wide the ground was filled with their burrows and the air above this plot was literally alive with the bees. The bees do not seem to bother either teams or people. They are very harmless in their habits. A few questions were asked, and then Prof. Hood presented the subject of rope transmission of power. Different methods have local reputations, which interfere with the general adoption of other systems which may possess decided advantages. Belting in the United States, and gearing in Britain, are the favorite methods. Transmission of power by common hemp ropes of comparatively small diameter running on grooved shived pulleys at high velocity, possesses the great advantage of small first cost, and reasonable wear. The tension on a common single belt may be about 25 lbs. per one inch of width, which makes a one-inch belt traveling 1000 feet per minute capable of transmitting 1 H. P. 1500 feet per minute, an average good speed. To transmit 25 H. P. would require a 17-inch belt, which if of much length, would be expensive. A hemp rope of 1/2-inch diameter, running at 2000 feet per minute can safely carry 25 H. P., and the first cost is much less. Power is carried long distances in this way, and the subdivisions of power among many small manufacturing from one central power plant is made practical. Means of preserving the tension of the rope under varying conditions of humidity were spoken of, and also methods of carrying power into difficult places. The subject was discussed, and a great many interesting questions were asked. Prof. Failyer gave us one of his interesting talks on baking powders. He told us of how the baking powder, when brought into contact with a liquid, generates a gas which pushes the particles of dough apart, and by that means it makes the dough light. The sodium bicarbonate in baking powder is acted on by an acid salt, and carbon dioxide is given off. When cream of tartar and bicarbonate of soda are mixed together dry, no change takes place, but when water is added, a change does take place according to the following formula: $\text{KHCO}_3 + \text{NaHCO}_3 \rightarrow \text{KNaC}_4\text{H}_4\text{O}_6 + \text{CO}_2 + \text{H}_2\text{O}$. Starch is used to preserve baking powder by taking up the moisture. Pure baking powder contains cream of tartar, bicarbonate of sodium and starch with small quantities of such substances as occur in the commercial articles, but it is found that other powders contain alum and calcium acid phosphate. When alum powder is added to bread the following change takes place: $2\text{AlKSO}_4 + 3\text{NaHCO}_3 \rightarrow \text{K}_2\text{SO}_4 + 3\text{Na}_2\text{SO}_4 + 2\text{AlO}_3\text{H}_3 + 3\text{CO}_2$. All cheap baking powders contain alum, and by experiment it has been found that it produces an injurious effect on the digestive organs.

A lively discussion ensued in which the good and bad qualities of both pure and impure baking powders were compared.

Mr. Reed followed with a paper on Vinegar. He said that vinegar is one of the oldest known compounds. It is said to have been used by Cleopatra to dissolve pearls, and Livy and Plutarch state that Hannibal used it to dissolve rocks that came in his way in crossing the Alps; but when we consider that it requires twelve pounds of vinegar to dissolve one pound of limestone, we are tempted to say that history is not true. Vinegar is now obtained for commercial purposes by the oxidation of alcohol. A solution containing from 10 to 15 per cent of alcohol is put in generators, a quantity of fresh vinegar is added and fermentation begins. The object of this addition of vinegar is to supply the ferment which causes the conversion of alcohol to vinegar. The action of the ferment is to oxidize the alcohol, as represented by $\text{C}_2\text{H}_5 + 2\text{O} \rightarrow \text{C}_2\text{H}_4\text{O}_2 + \text{H}_2$. A way much used is to pass the alcohol solution through shavings which have been previously saturated with vinegar containing the ferment. This exposes greater quantities of the alcohol to the ferment, and the action is more rapid. After passing through generators, vinegar is filtered, stored, and colored, and also flavored with ether, but it never has such a delicate flavor and odor as cider vinegar. A great amount of vinegar is also obtained from the distillation of wood. Wood is placed in a retort and heated to 212° F., and then the acetic acid begins to come off. The crude acid called pyroligneous acid is purified and afterwards colored the same as vinegar made from alcohol. I have determined the acid in thirty-six samples of cider vinegar and found the range of acid was from 1.3 to 6.9 per cent. The weak vinegar was that of cider juice which was made early in the season, and is, no doubt, accounted for by the apples having but little sugar in them. About one-third of the samples contained less than four per cent of acid, and more than half less than five per cent, which is weaker than the vinegar of commerce. The different ways of making vinegar were discussed, and many questions asked. Adjournment.

Lottie J. Short, Sec.

December 12th.
President Rice called the Hamiltons to order at the usual hour. Roll-call. W. S. Pope led in devotion. J. J. Halderman was initiated. L. C. Lewis opened the programme by declaiming, "Objects of Education." This was followed by the "Effects of Competition," an essay by J. H. Persinger, in which he illustrated that the consumer has to pay for competition; if there were one merchant where there are three he would do a greater business and therefore, could sell at a smaller margin of profit, and his customers would get the benefit of what it would take to keep the other two merchants—there are too many "middlemen." V. M. Hester's essay dealt with the "Divorces in the United States." Divorces are increasing twice as fast as the population. There is one divorce granted for every six marriages, and 35,000 will probably be granted this year in the United States. F. G. Traskowsky furnished the Society with an instrumental and two vocal solos, the appreciation of which was shown by an encore. Resolved, "That women are to blame for the low wages they receive," was the question for debate. W. S. Pope, taking the place of G. W. Wildin, who was absent, and F. Lawson argued on the affirmative that women were to blame for the low wages they receive because they have made no effort to secure better wages by labor organizations or by striking. Men would get low wages, too, if they made no effort to keep them up. Women could organize, and should to protect their interests. A great many women in good circumstances work for wages for the sake of having something to do. They might better do something for themselves, and let the more needy have the positions they fill. In the clothing and grocery establishments, and in handling money in banks or official departments, women are better clerks than men, but they don't get as good wages, because it is known that women will work for less, and they have no one to blame but themselves. It is not the size, but the quality that makes the person. Women can stand as much hardship as men—in many cases have shown their superiority. Intellectually, to men. Mrs. Lease, for instance, has gained as great a name as Sen or Ingalls. This shows that she is equal to man in the political profession, and she is fully his equal in other professions. Women make better teachers and physicians than men do. The only reason they aren't paid well is that they don't demand it. The teachers' organization in Iowa was not extensive enough to be effective. They must organize on a larger scale to make it a success. R. L. Wallis and W. E. Bryan on the negative claimed that women are not to blame for the low wages they receive, because they are not men's physical equal. There are fewer things women can do, and therefore in her lines of business there are more workers than work. In clerking establishments men are employed, chiefly, because they are more regular in attendance to duty, and will hold to their position longer, become more expert; and therefore the employer can afford to pay more for their services. Women can not enter the professions. They have been tolerably successful as physicians, but can not be lawyers. In teaching men get better wages because they follow it longer and become more experienced. Women get married and quit teaching before their services become very valuable. Men and women are both in the telegraphic association, but men get the best wages, so the labor organization does not help her any. Women don't get as good pay in hospitals, or in our institutions of learning as men do. Mrs. Lease doesn't get the salary Sen or Ingalls does, if she is as smart, and she can't help it. Judges Messrs. Hester, Olmstead, and Dill, decided two to one in favor of the negative. recess ten minutes. G. L. Plasket made a very creditable appearance before the society for the first time, in reading "Three Philanthropists." W. J. Y.

HOME READING.

Continued from page 66

is not meant a record of mere facts—which are true or false according to the interpretation which is put on them. A true book holds the mirror up to nature, and that not in her worst aspects. "Nature is not always languishing with a great sorrow on her face and bottle of laudanum in her pocket, weeping last tears over a false lover. Nature is not always armed with a pistol and a bowie-knife. Nature is sane, rational, even divinely beautiful at times, like her maker."

A true book, on whatever subject, reflects the idea, and is the expression of healthy human nature. It shows us humanity loving, hating, striving, exulting, rejoicing, or sorrowing, naturally. Hence there are lots of books, which, although written with good intentions, we must reject.

Having thrown out those books which are not natural and healthy, we must still lay aside those that are not adapted to our present needs. Too much growth in one direction becomes a disease, and the diet must be varied if we would have a normal development. Read carefully. Read as much as you can, and re-read. Let your reading be diversified, but not desultory. For most of us it would be safe to say, no book is fit to read that is not worth reading twice.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Nearly twenty-seven per cent of the certificates granted in this State during 1890 were to persons who had no previous experience in teaching.

Prof. C. Y. Roop, of Salina, was elected President of the Central Kansas Teachers' Association. The next meeting will again be held at Hutchinson.

Supt. Olson of Riley County reports a very successful teachers meeting on Saturday last at Randolph. Over half the teachers of the county were present.

Harry B. Hall, a student of the State University died last Saturday afternoon, from the effects of overexertion in a football game played during the forenoon.

The State Teachers' Association will command the attention of several members of the Faculty during holiday week, and many old students will greet each other there.

The McPherson College paper states that President Sharp, of whose accident the INDUSTRIALIST spoke last week, is getting along well. His foot need not be amputated.

The Marshall County Teachers' Association on Friday and Saturday after Thanksgiving was attended by seventy-five teachers. The programme was carried out without a single omission.

The State Normal School mourns the loss of a student by one of those common accidents which are the result of firearms and—"I did not know it was loaded." Midland College at Atchison had a similar case a while ago.

Music is taught in the Newton public schools. The instructor is an accomplished woman, who is painstaking and earnest in her work. The pupils learn, and it is no trouble for the schools to turn out a chorus of 500 to 600 voices.—*Kansas City Star*.

The managers of the new opera house in Iola have decided not to allow any whistling, stamping of feet, or any kind of hoodlumism at the performances held therein. That is a good regulation, and one that could be followed with profit in many a place—even at some school exhibitions.

The principal Kansas railroads have made a rate of one fare for the round trip from Kansas points to Topeka, for the accommodation of those desiring to attend the Kansas State Teachers' Association. Tickets on sale Dec. 28 and 29. Good returning until and including Jan. 2d. Every teacher should attend these meetings.

The formal opening and dedication of the new building of Ottawa University was celebrated with appropriate ceremonies on November 28th. In the

evening the Baptist congregation raised \$2,000 to complete the \$25,600 which the church of the State was to raise in order to secure the additional \$10,000 from the Baptist Educational Society of the U. S. The new building is the south wing of the main building which is to be constructed. It is four stories high, built of stone, costs \$16,500, and looks bright and substantial.

To judge from the lengthy reports of the numerous teachers' meetings held on Friday and Saturday after Thanksgiving, there has been an enthusiastic revival of educational interests all over the State on that date, and it would be impossible for the short columns of the INDUSTRIALIST to report even the best of the programmes which have come to our notice. All did well—very well.

The stockholders of the Bethel College, which the Mennonites are erecting at Newton, met this week. Most of them are residents of Kansas, though a few are from other states, it being a national institution, to which Mennonites from every State in the Union are contributing. The endowment of the college is now \$58,000. It was decided that the college should be opened in the fall of 1892. Three new directors were elected; P. P. Steiner, of Indiana; Christ Showalter, of Iowa, and J. R. Teoves, of McLain, Kansas. The following are the officers: President, J. J. Krehbiel; secretary, Rev. D. Goerz; treasurer, B. Warkentin.

This is the way Eugene Ware, the Kansas poet, speaks of literature in Kansas: "It is a good deal dependent on the financial prosperity of the people. It literally flourishes only in 'rich' soil. Kansas will never be a literary center, although she will always have good literature. People East don't think much of us here. Everything literary centers in London. Indiana people have a poor opinion of the Kansas kind of literature, but New York writers think it only a second-class sort that is produced as far West as Indiana, and the London literati regard New York genius as very crude. So you see it's a matter of worshiping the East and disdaining everything West."

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's daily practice in an industrial art; and variations from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found under

OUTLINE OF INSTRUCTION:—

FIRST YEAR.

FALL TERM: Algebra.
English Analysis.
Geometrical Drawing.
Industrial.

WINTER TERM: Algebra.
English Composition.
Book keeping.
Free-hand Drawing three times a week.
Industrial.

SPRING TERM: Algebra.
English Structure.
Botany.
Industrial (Carpentry or Sewing.)

SECOND YEAR.

FALL TERM: Geometry.
Elementary Chemistry.
Horticulture.
Industrial.

WINTER TERM: Geometry completed, Projection Drawing.
Agriculture or Household Economy.
Organic Chemistry and Mineralogy.
Twelve Lectures in Military Science.
Industrial (Cooking.)

SPRING TERM: Anatomy and Physiology.
Entomology.
Analytical Chemistry.
Twenty Lectures in Military Science.
Industrial (Farm and Garden or Dairy)

THIRD YEAR.

FALL TERM: Trigonometry and Surveying.
Agricultural Chemistry.
General History.
Industrial (Farm and Garden.)

WINTER TERM: Mechanics.
Constitutional History and Civil Government.
Rhetoric.
Industrial.

SPRING TERM: Civil Engineering or Hygiene.
Physics.
English Literature.
Perspective Drawing two hours a week;
Drafting two hours.
Industrial.

FOURTH YEAR.

FALL TERM: Agriculture or Literature.
Physics and Meteorology.
Psychology.
Industrial.

WINTER TERM: Logic, Deductive and Inductive.
Zoology.
Structural Botany.
Veterinary Science or Floriculture.
Industrial.

SPRING TERM: Geology.
Political Economy.
An elective in Agriculture, Horticulture,
Mechanics, or related sciences.
Industrial.

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SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 2, 1892.

NUMBER 18.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLORADO WINTER WEATHER.

BY C. A. CAMPBELL, '91.

PARAMOUNT of all claims which Colorado makes to draw within her borders the large class of recreating population quite prominent in the east of our country, is that of her invigorating climate and bracing atmosphere—most noticeable, or at least most sought after, during the warmer months of the year. That she has ample reason for such a claim, no one can doubt. Yet who hears of winter in Colorado?

Naturally dry at all seasons of the year, the colder months are no exception; and were I to advise as to a winter sojourn, I would not refer to balmy Florida or sunny California, but to Colorado, in near proximity to the mountains. You ask why?

It seems that an all-wise Creator has seen fit to equip nature with varied conditions. In summer, we are glad to be deprived of the frost and intense cold of winter, to which we are frequently subjected; in winter, to be free from the dulling effect of summer heat, and to receive energy and intense-ness of purpose, which undoubtedly it gives us. Taking it for granted that a moderate amount of cold is useful, if not absolutely essential, to a healthful life, can there not be different conditions of cold? Surely there can be. It seems impossible that one can live who would consciously exclude from his life all the beauties and blessings of nature.

With her remarkably dry and bracing atmosphere, Colorado affords to my mind a matchless opportunity for perfect enjoyment—no wonder we go into raptures over mountain air and mountain scenery.

Even now as I look out in any direction a complete change of view meets the eye. To the west rises the first range of the Rockies, a mass of sparkling snow, set off by a rich green background of cedar and pines; beyond this, rising to a dazzling height, are the peaks of the Snowy Range, crowned by perpetual snow. To the north, deep and dark, is Boulder Canon; to the east, Clear Creek Canon, at its mouth the thriving town of Golden, guarded by an immense projection of lava rock, familiarly known as Castle Rock, almost overhanging the city. Further to the south, about seventy miles, is Pike's Peak, perfectly visible in daylight. To the east, the brilliantly lighted and attractive "Queen City of the West," Denver, resplendent with a thousand electric lights twinkling in the distance.—All of these plainly seen by moonlight. If the mountains in summer are sublime, in the winter they are awful. Presenting a bank of solid white, they can but impress one with the majesty of the Infinite Power by whose hand they were created.

Colorado can boast of the pleasures of winter with none of its unpleasantness. We can enjoy a Kansas snowstorm without the blizzard and the following days of mud and slush. The dryness of the air and the continuity of the breezes from the mountains soon convert the snow-covered soil to dry ground. The rapidity with which this takes place is remarkable, also highly satisfactory.

Paradoxical as it may seem, while in the summer the nights are very cool, during the winter months it is the reverse; usually clear and pleasant through the day, growing cooler in the course of the afternoon, sunset recording the lowest temperature. Then it begins to grow warm, and the nights are warmer than the days, my own experience being confirmed by hosts of others.

In these points only—air, climate, and temperature—does Colorado excel our State of Kansas. While a climate may be perfection for health, it may be manifestly a failure for agricultural pur-

poses, as some portions of the State surely are. Irrigation is essential to the farmer. If his land is above water, he pastures it; if below, he "opens the box" and trusts to Providence to furnish a crop. Such is not infrequently the case. As a loyal Kansan, also as a conscientious one, I can but affirm the super-excellence of the Kansas farmer and his means.

GOLDEN, COLO., DEC. 28.

THE USE OF A ROLLER.

BY P. S. CREAGER, '91.

AMONG the many machines which are rapidly attaining to well-deserved popularity with Kansas farmers, none is of greater utility than the ordinary farm roller. The sublime faith of Kansans in the theory that all that is necessary in the "Garden of the West" is to scatter the seed, and that Providence will do the rest, has received several stunning blows during the last few droughty seasons. People seem to be waking up to a realization of the fact, so thoroughly demonstrated recently, that there is a vast difference between farming with faith and farming with common sense and good tools. The spectacle of ordinary Kansas land producing "living crops" in poor years and immense crops in good ones, when farmed on scientific principles, has induced hundreds of previously slipshod farmers to inquire into the whys and wherefores of their successful neighbor's success; and they have almost invariably found that his better crops are occasioned by his more careful preparation of the soil. Usually it is found that next to the plow the implement most depended on in this preparation is some form of the roller.

Everyone with ordinary powers of observation is well acquainted with the fact that all grains germinate more quickly and grow far more luxuriantly in a well-settled soil than in a loose one; hence the practice of early plowing for wheat and fall plowing for oats. Few farmers, however, deem this settling of sufficient importance to justify the expenditure of time and labor necessary to produce it by artificial means. And many ask, "Why do you with your roller reduce the land to the same condition in which it was before it was plowed?" But we do not undo with our roller the benefits of the previous plowing; we merely counteract one of the very evil effects, that which comes from rendering the soil excessively loose. The "surface" farmer arrives at the same result by shallow plowing; that is, by stirring to so slight a depth that the injury following too friable a seed bed is scarcely noticeable. His harvest, when compared with that of the deep-plowing farmer who plants on freshly plowed fields without settling, almost justifies his assertion that shallow plowing is the best for Kansas.

But the fact is, deep plowing pays, providing that in connection with this the land is rolled. We plow to renovate and to loosen the soil—to turn up fresh portions to the action of the elements and to put it in such a condition that the tender plant roots can readily penetrate it. It has been proved conclusively that, especially in a country subject to drought, in accomplishing the former, we overdo the latter, rendering it a poor germinating medium and extremely susceptible to the trying action of the sun and wind. Then, to balance matters, we must in some way return the land to a condition of firm tilth. We do not want the soil hard, but we do want it firm.

Now a good heavy roller, which an ordinary team can draw and any boy can manage, will in one day reduce to a firm, solid bed as much land as a team will plow in five days. The good re-

sults which are almost certain to follow are manifold. The lumps will all be crushed, the inequalities smoothed down nearly as much as by a harrow. The seed sown upon land thus treated will germinate more quickly and surely, and the soil will retain its moisture far longer.

Will not all these benefits justify the use of a roller? Will not the facts here presented at least justify you in giving the roller a fair trial? Then get you a roller.—*Kansas Weekly Capital*.
JAMESTOWN, KANSAS, Dec. 20th.

BETTER TILLAGE NEEDED.

The recent report of the Agricultural Department so clearly demonstrates that the best farming lands are not always more profitable than some not so fertile as to excite surprise. The report for 1891, which was a most prosperous year, shows that the average number of bushels of corn grown on each acre is 26.6 bushels. Strange to say, New England led, her lowest average (New Hampshire and Connecticut) being 25.7 bushels; with Massachusetts the highest, with 40 bushels. We grow only 93.9 bushels of potatoes on an acre, Maine and the new State of Washington leading with 125 bushels each, while Massachusetts grows 1,600 pounds of tobacco on an acre and Kentucky only 780 pounds. The yield of hay is highest in Vermont, at 1.6 tons per acre. These facts are curious in the face of the excitement over the abandoned farms in New England, but they show that the productions per acre in this country, great as they may be as a whole, are really very low.

If New England, with her short-growing season and stone land, with more labor required to produce crops than in other sections, can exceed the average of the best corn-producing States of the West, where the soils are rich and easily cultivated, there is a wide field open to the farmers of all sections for improvement. It has been demonstrated on special plots that 150 bushels of corn, five tons of hay, and over 1,000 bushels of potatoes can be grown on an acre, and though such experiments have not been extended to large areas, it is confidently believed that such yields are possible on farms, and the results at least point out to farmers that they should not be satisfied unless their farms produce more and more each year.

The soil and seasons are not at fault. There is no reason why Florida, which has a longer growing season than New England, should produce only eleven bushels of corn per acre, nor should Massachusetts produce twice as much tobacco per acre as Virginia, Kentucky, Maryland, or Tennessee, where the soil is well adapted to that product. The success of New England is due to the fact that her lands are such as to demand better tillage. The very difficulties which the farmers of that section encounter compel them to use more judgment. In fact, "brain work" is one of their potent factors of success. Even the drawbacks of climate, and the lack of fertility of the soil, did not prevent New England from leading, and this fact is a lesson which well deserves the consideration of farmers.—*Philadelphia Record*.

THREE REQUISITES FOR GOOD FARMING.

Good seed, good soil, and good cultivation are the three requisites toward attaining success in agriculture. All three of these are largely within our own control, and if we neglect any of them we have no right to complain at the result. It is easy to determine whether seed is good by testing a small quantity before planting. A small box of moist earth placed in a warm corner will tell the story quickly. The seeds should be counted before they are placed in the soil, and if at least 75 per cent do not germinate the seed should be discarded.

Good soil is also within reach of all, to at least some extent. However poor the farm may be as a whole, we can find some portion that we shall be able to bring up to a good state of fertility; then upon this portion it would pay to expend our major effort, practicing intensive cultivation hereon until we could find means and opportunity for improving the balance. And good cultivation is within the reach of any able bodied man, for a good, short, and simple rule for the farm is to not attempt to cultivate more than you can cultivate well. Whether it shall be a large farm half-tilled, or a small farm well-tilled, is the question before the great majority of our farmers to-day. We believe time will prove the latter to be the best.—*Farm Journal*.

WHO MAKES FARMING PAY?

A Vermont subscriber favors intense farming, as follows: You say, "Take up the pen and fire away." So, then, I ask, "Does farming pay?" There are two classes of farmers that will answer this, of course. One answers yes, the other, no. The one that answers yes is the one that does not try to own all the land that joins his, but spends his whole time on what little he has. This farmer can in the spring get his crops all planted or sown in season, can hoe in season and hay in season, and not be forever doing what he ought to have done some time before; and, more than this, he will raise more on one acre than he could on three not taken care of as they should be. He also can keep his fences in repair, so his cattle and sheep are not roaming around the country. This farmer says it is a great deal easier to take from one acre of grass land three tons of hay than to go over three acres to get one ton. It is easier to plow, manure, plant, hoe, and harvest one acre of corn that produces 200 baskets of ears than three acres to produce the same 200 baskets. He will say this may seem a little large to some readers, but if you try you can find it to be true.

The one that answers no, has about three times as much land as he can in any way care for. He is always out of help, his plowing is not done until the sowing and planting should be. Then soon haying approaches, and he must begin his hoeing or haying; and, to be up with his neighbor, his corn and potatoes are left to struggle with the weeds. At harvest time the consequence is very plain to be seen. His cattle are out of the pasture, and time must be spent in getting them in; and then there are many other things coming up that cannot be seen to as they ought, by having too much land.—*New Hampshire Mirror and Farmer*.

COURSE OF STUDY.

The necessity for so adjusting various branches of a course of study that there shall be as little waste as possible in acquiring both information and discipline, is felt by every teacher. Such a course is not designed to be absolutely inflexible, but to guide the judgment into some definite line of progress from which no mere whim shall turn a student aside.

Each student is expected to take three studies besides one hour's daily practice in an industrial art; and variations from this rule can be made only with the consent of the Faculty.

Parallel courses are offered to both sexes, with such differences as their necessities seem to call for. The following gives the general scope of the two, but fuller explanations are found under OUTLINE OF INSTRUCTION:—

FIRST YEAR.

- FALL TERM: Algebra.
English Analysis.
Geometrical Drawing.
Industrial.
- WINTER TERM: Algebra.
English Composition.
Book-keeping.
Free-hand Drawing three times a week.
Industrial.
- SPRING TERM: Algebra.
English Structure.
Botany.
Industrial (Carpentry or Sewing.)

SECOND YEAR.

- FALL TERM: Geometry.
Elementary Chemistry.
Horticulture.
Industrial.
- WINTER TERM: Geometry completed, Projection Drawing.
Agriculture or Household Economy.
Organic Chemistry and Mineralogy.
Twelve Lectures in Military Science.
Industrial (Cooking.)
- SPRING TERM: Anatomy and Physiology.
Entomology.
Analytical Chemistry.
Twenty Lectures in Military Science.
Industrial (Farm and Garden or Dairy.)

THIRD YEAR.

- FALL TERM: Trigonometry and Surveying.
Agricultural Chemistry.
General History.
Industrial (Farm and Garden.)
- WINTER TERM: Mechanics.
Constitutional History and Civil Government.
Rhetoric.
Industrial.
- SPRING TERM: Civil Engineering or Hygiene.
Physics.
English Literature.
Perspective Drawing two hours a week;
Drafting two hours.
Industrial.

FOURTH YEAR.

- FALL TERM: Agriculture or Literature.
Physics and Meteorology.
Psychology.
Industrial.
- WINTER TERM: Logic, Deductive and Inductive.
Zoology.
Structural Botany.
Veterinary Science or Floriculture.
Industrial.
- SPRING TERM: Geology.
Political Economy.
An elective in Agriculture, Horticulture, Mechanics, or related sciences.
Industrial.

KANSAS THRIFT.

Boyington's fish pond was partly drained last week and quite a number of three and four year old carp put on the market. The largest of the four year olds weigh from eight to nine pounds. There is plenty of money in raising carp after you are started.—*Washington Republic*.

Between 2500 and 3000 cattle are being wintered by different farmers within a distance of two miles of the west limits of the city. The number of cattle in the county at this time is much greater than at any time since the days of the cowboys. It will require a large amount of feed to bring them through the winter.—*Garden City Imprint*.

A few new residences and many new barns, corn-cribs, granaries, and other improvements mark the new era of rural development in this county. To judge from the *Record*, a similar state of development is under headway in Rooks county. This is not ephemeral. It constitutes a period in the career of this section of the country.—*Osborne County Farmer*.

All reports agree that Western Kansas will make the best showing in wheat next spring of all the sections of the State from the present outlook. It is to be hoped so. All the settlers of Western Kansas who are still there are pure grit. They have borne a multitude of discouragements, and like a green bay tree, their faith still flourishes despite drouth and pests and dry winds. There was a time when Eastern Kansas met and conquered the same obstacles, and people used to shake their heads in doubt of all Kansas as they do now of the extreme western section. A few good wheat crops will convert the unbelieving and reward the heroes who refuse to surrender the fight. Good luck to Western Kansas!—*Topeka Capital*.

Kansas is the very best and cheapest milk-producing country in the world, and yet the State has no milk condensing factories. There are very few more profitable enterprises than milk condensing, and it is an inviting field for farmers' organizations and towns desiring to build up their home market. Good evidence of the profit in that business is given in the sale of the five chief milk-condensing factories operated under the Borden patent in the United States located at Elgin, Carpenter, Ill., and Brewster, Wassaic, and Walden, New York, to an English syndicate for \$15,000,000 as reported in a dispatch in the *Chicago Herald*. Nearly every small town in Kansas can have a milk-condensing, starch, canning, meat-packing, fruit-drying, or some other factory, by the investment of comparatively small capital and the necessary knowledge and enterprise to make any business successful. The opportunities of Kansas towns and people are almost unlimited.—*Mound City Clarion*.

GENERAL FARMING.

General farming is more particularly the road upon which the average American farmer travels in his agricultural pursuits, either to a competency, or a miserably eked out existence. There are not a few general principles outside of location and environments that to a great extent lead to success or failure, as the case may be. Sound knowledge of the primary or elementary points of agricultural pursuits, will, to some extent at least, enable a farmer to lay such a foundation for future successful operations, but this is not enough. The bright student of early years must still further continue his studies if he wishes to graduate with honors. It is the same with the young farmer. The most pleasing outlook may be marred by some foreign object entirely out of place and sympathy with the natural surroundings, otherwise beautiful. On a farm there may be the best soil, the purest water, and all the hundred and one things that go to make a model home farm, but if the farmer has no taste for laying off fields to the best advantage, and thoroughly cultivating them on a basis that enriches instead of impoverishing the soil, his operations will of necessity lead to the down grade of farming. Hap-hazard, fitful, or spasmodic efforts are never of much account in life's battles. A steady aim on an intelligently conceived plan, that has been well mapped out, may and will do much in the future operations of farmers. If the western farmer but saved what he wastes, he would have more as a rule, than the New England farmer makes altogether.—*Exchange*.

The cry for good roads is being taken up by all the papers of the land.

CALENDAR.

1891-92.
 Fall Term—September 10th to December 18th.
 Winter Term—January 5th to March 25th.
 Spring Term—March 28th to June 8th.
 June 8th, Commencement.
 1892-93.
 Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Miss Agnes Graham entertained a large number of little people yesterday afternoon.

President Fairchild returned home Friday afternoon, sick, and is confined to his room.

Mrs. Hood writes from Terre Haute that her mother is out danger, and is improving slowly.

Prof. Olin's family enjoyed a visit during the holidays from Prof. and Mrs. A. S. Olin, of Kansas City.

Eben Blachly showed his cousins, May and Harry McConell, of Chicago, through the College buildings this morning.

The Drawing Room has been the rendezvous during the holidays for the members of the Third-year class at work on their maps.

The steer-feeding experiments are reported by Prof. Georgeson as progressing very satisfactorily, some important facts in feeding being collected.

The new iron foundry ran its first heat December 15th. It also made castings on the 21st, 24th, and 29th, melting altogether 7,000 pounds.

Mr. A. A. Graham, of Ulysses, Nebraska, is visiting with his brother, our Secretary, on his return from Dighton, where he spent a week with his father.

Prof. A. S. Hitchcock, recently elected to the Chair of Botany in this College, arrived from St. Louis yesterday. Until his family arrives, he will have rooms at Mr. Mason's.

Prof. Georgeson attended the meeting of the State Dairy Association at Clay Center, on Thursday and Friday, and read a paper entitled "Principles of Feeding for Dairy Cows." An interesting and profitable session is reported.

The State Board of Promotion of Education, having in charge the educational interests of the State at the Columbian Exposition, is organized under charter, with Supt. J. M. Bloss, President; Pres. A. R. Taylor, Secretary; Pres. Geo. T. Fairchild, Treasurer.

A private letter from Professor Shelton states that the Government has appropriated £5,000 for an agricultural college building at Brisbane, Queensland, and that work thereon will be commenced early this year. The Professor says that he plans to visit America in 1893 to arrange the Queensland exhibit at the Columbian Exposition.

Professors Graham and Breese returned on Thursday from a fairly successful expedition to Oklahoma. They visited the country contiguous to Fort Reno as guests of Lieut. Harbord, who was, however, ordered away on recruiting duty on the day the visitors arrived. They brought home as specimens for the Museum a deer skin, two turkey skins, and a number of opossums, hawks, and owls.

President and Mrs. Fairchild greeted about forty alumni of Oberlin College at the reunion in Kansas City, beginning on Tuesday of this week. President Ballantine met the Association. The pleasant social features of the reunion, supplemented by a banquet at the Midland, made the occasion one long to be remembered. The Association re-organized for more extensive reunions in the future. President Fairchild was re-elected President.

President and Mrs. Fairchild, Prof. and Mrs. Nichols, Prof. Olin, and Prof. Lantz attended the meeting of the State Teachers' Association at Topeka this week. The meeting was the most successful in its history. About 1,500 teachers of Kansas were in attendance, although the actual enrollment did not exceed 1,100. The papers read were good, and the discussions interesting. Chief among the good things on the programme was the lecture by Inspector Hughes, of Toronto,

Canada, whose subject was "The Schools and Schoolmasters of Dickens." An appreciative audience heard him with the closest attention during an address of two hours' duration. The programme was interspersed and enlivened by music of great excellence, the singing by the Ladies' Quartette from Clay Center being the special feature. All who were so fortunate as to hear their rendering of "Annie Laurie" will always have pleasant recollections of this meeting of the Association.

La grippe is responsible for much suffering in College circles for a week or two past, among the more serious cases being Mrs. Walters, who suffered a severe attack of pneumonia, and Mrs. Failyer, who is threatened with a like complication. Mrs. Walters' condition was at one time critical, but she is now in a fair way to recover. Prof. Popenoe's family were all sick for several days. Mr. Baxter is able to attend to his duties after a week's confinement to his room. Other cases are reported in which the attack was lighter.

Prof. Mason took advantage of the holidays to visit the counties of Crawford and Cherokee on a collecting expedition, and as a result the Museum is enriched by many specimens of native woods, most of which are unknown in this part of the State. Among the collection may be mentioned hickory, oak, sassafras, bumelia ("thunder-wood" in the local vernacular), black birch, wild black cherry, spice bush, wahoo elm, paw-paw, persimmon, pecan, sugar maple, black haw, and sumach, and in addition a number of climbers and creepers.

GRADUATES AND STUDENTS.

John Davis, '90, was seen at the College Christmas week.

Lottie Short, '91, spent Christmas at home in Blue Rapids.

Madeleine Milner, '91, leaves soon for an extended visit in Ohio.

P. C. Milner, '91, came up from Topeka for his Christmas dinner.

Quite a number of students attended the State Teachers' Association.

F. A. Waugh, '91, paid a flying visit to Manhattan during the holidays.

Kate and Martha Harbord announce their intention of returning to College next year.

The smiling face of A. T. Hovey, Third-year in 1890, greeted friends in the city on Monday.

H. W. Avery, '91, is in California disposing of a carload of fine horses from the Wakefield farm.

Ben Skinner, '91, spent the holidays with Manhattan friends. He reports successful work as a teacher.

Ada Rice, Second-year in 1890-91, resigns from the Clifton schools to accept a position as teacher in Manhattan.

W. E. Whaley, '86, student in the Law Department of Northwestern University, at Chicago, spent the holidays at home.

W. J. Burtis, '87, and Winnie Brown-Burtis, Third-year in '88, spent the holidays with Mr. Burtis' father, in Manhattan.

Maude Whitney, Third-year in 1890-91, microscopic meat inspector in Government employ at Kansas City, spent the holidays at home.

F. H. Avery, '87, was in town this week. He has "settled down" on the farm near Wakefield, and, if reports be true, is a successful stock-raiser.

K. C. Davis, '91, visited friends in Manhattan last week, and made a hurried call at the College. He is at the State Normal preparing himself for a teacher.

Eben Blachly, Second-year in 1890-91, who lost an arm by the accidental discharge of a gun while in the U. S. Geological Survey near Beloit, is the proud owner of a beautiful gold watch, a Christmas present from his comrades in the Survey, Messrs. R. M. Townsend, F. Howard Seely, and J. L. Bowdre. Mr. Blachly expects to return to College next term.

Miss Phoebe Haines ['83] surprised the folks last Thursday by coming home for a few days' vacation. She was snowed in twenty-four hours on her way. She returned to Las Cruces, New

Mexico, Wednesday, to take up her work at the Agricultural College there.—*Manhattan Nationalist*.

J. E. Thackrey, Third-year in 1888-9, now teaching in this county, is offered a position as instructor in the Indian school at Pine Ridge, South Dakota, which he may accept.

R. A. Clark, in Third-year classes last term, drops out to accept a situation as teacher in the Presbyterian Mission at Sitka, Alaska, for which place he expects to leave next week.

J. G. Towner and Geo. E. Hopper ['85], of Manhattan, have been awarded the contract for the new building and repairs on the old for the State Industrial School for Girls at Beloit.—*Mercury*.

J. G. Harbord, '86, Second Lieut. 6th Infantry, stationed at Fort Reno, Oklahoma, has been detailed on recruiting service, with headquarters at Wichita. Lieut. Harbord is the youngest officer in the command.

I. B. Parker, Fourth-year, while out driving recently, met with a serious accident. His horse became frightened, and pulling him over the dashboard, kicked him, inflicting serious injuries. He is recovering rapidly, however, and will be able to join classes on Tuesday.

Among the students and graduates of the College greeted during our attendance at the State Teachers' Association, are the following: Ella S. Child, '77, J. H. Calvin, '84, E. Ada Little, and E. H. Perry, '86, W. J. McLaughlin, '87, C. E. Freeman and Ina M. Turner, '89, A. F. Cranston, John Davis, S. C. Harner, Emma Secrest, and H. N. Whitford, '90, Tina L. Coburn, K. C. Davis, Ben Skinner, Lillian A. St. John, F. A. Waugh, P. C. Milner, W. A. Anderson, and Mary Cottrell, '91, G. L. Clothier and D. F. Wickman, Fourth-years, M. F. Hulett, Third-year, H. W. Mattoon, Second-year, and Kate G. Harbord, Martha Harbord, M. N. Meyers, J. N. Laswell, F. Emma Brown, H. C. Peoples, E. F. Kistler, and L. Harford, former students.

MEANS OF ILLUSTRATION.

AGRICULTURE.—One hundred and eighty-five acres of land used for farm purposes, with hundreds of plots under experiment in grain, grasses, and forage crops; and illustrating various methods of culture and rotation.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general-purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs.

Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine. Farm implements of improved patterns.

Collections of grains, grasses, and forage plants. Buildings, stock, and equipments, are valued at \$26,000.

HORTICULTURE AND ENTOMOLOGY.—Orchards containing 200 varieties of apples, 30 of peaches, 30 of pears, 20 of plums, 30 of cherries, and five of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, gooseberries, currants, and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from one to twenty years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable gardens, with hot-beds and cold-frames, and experimental beds. Practice rows for student's budding, grafting, cultivating, and pruning.

Two well-planned and furnished green-houses

of three rooms each, stocked with a collection of native and exotic plants.

Museum, containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$13,000.

CHEMISTRY AND MINERALOGY.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$8,000.

BOTANY.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-eight compound microscopes, four dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$3,000.

GEOLOGY, ZOOLOGY, AND VETERINARY SCIENCE.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and mollusks in the State. Kansas reptiles and batrachians, salt-water fishes, and vertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and re-agents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased structure. Value, including general museum, \$4,500.

DRAWING.—Models, plaster-casts, patterns, easels, and implements. Valued at \$1,400.

PHYSICS.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, Thompson's potential galvanometer, Coulomb's torsion balance, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$4,000.

MATHEMATICS AND SURVEYING.—Transits, plane-table, compasses, levels, chains, models, etc. Valued at \$1,250.

MECHANICS AND ENGINEERING.—Carpenter shop, with separate benches for tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, friezer, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse power Atlas engine.

Shops for iron work, with forges, vises, drills, lathes, etc. Testing machine, charts and models. Inventory of material and apparatus in both shops, \$8,300.

KITCHEN LABORATORY, with ranges, cooking utensils, dining room furnishings, dairy furniture. Valued at \$600.

PRINTING.—Office with thirty pairs of cases, large fonts of six-point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a new Liberty quarto-medium job press; a Gordon eighth medium; a mitering machine, a rule-curling machine, and a paper cutter. Value of equipment, \$4,300.

SEWING ROOMS, with seven machines, models, patterns, and cases; worth \$600.

MUSIC ROOMS, with four pianos, four organs, and other instruments; valued at \$2,000.

A LIBRARY, carefully selected and catalogued, containing over 11,000 bound volumes, and 3,000 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the daily and weekly papers from all parts of the State. Value of Library, \$20,000.

ARMORY, containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$1,000.

Long winter nights afford an excellent time for the farmer to formulate his plans for the coming season. He can enjoy the warmth of the home hearth and map out his spring work with the aid of the boys—and it is wise to let the boys discuss matters with him.

TERMS OF ADMISSION.

Applicants for admission at the beginning of the College year must be at least fourteen years of age, and able to pass a satisfactory examination in reading, spelling, writing, arithmetic, geography, English grammar, and United States history. Those applying later in the year must show sufficient advancement to enter the classes already in progress. Every effort should be made to begin with the first day of the term, in order to advance with the classes from the first.

The following diplomas and certificates will be received in lieu of entrance examinations:—

1st. Diplomas received on the completion of a county course of study which has been approved by the Faculty, when properly signed by the County Superintendent.

2nd. Certificates of passing the grammar grade in any city school, with a course of study approved by the Faculty, when properly signed by the city superintendent.

3d. Kansas teachers' certificates issued by the county board of examiners, showing that the above-named studies have been passed with a grade of at least 70 per cent.

The Faculty have approved of the following courses of study, but others may be submitted for approval at any time:—

COUNTIES.			
Allen,	Elk,	Marshall,	Rice,
Anderson,	Ellis,	Marion,	Riley,
Barber,	Geary,	McPherson,	Rooks,
Brown,	Greenwood,	Mitchell,	Rush,
Bourbon,	Harper,	Montgomery,	Russell,
Butler,	Harvey,	Nemaha,	Shawnee,
Chase,	Jackson,	Neosho,	Summer,
Cherokee,	Jefferson,	Osage,	Wabaunsee,
Clay,	Jewell,	Osborne,	Washington,
Cloud,	Johnson,	Ottawa,	Wilson,
Cowley,	Kingman,	Republic,	Woodson,
Dickinson,	Leavenworth,	Reno,	Wyandotte.
Doniphan,	Linn,		

CITIES.			
Abilene,	Concordia,	Kanopolis,	Osborne,
Anthony,	El Dorado,	Kansas City,	Oswego,
Arkansas City,	Emporia,	Kingman,	Ottawa,
Atchison,	Eureka,	Larned,	Paola,
Augusta,	Fort Scott,	Lawrence,	Parsons,
Beloit,	Girard,	Leavenworth,	Sa Ina,
Burlington,	Great Bend,	Lyons,	Seneca,
Caldwell,	Hiawatha,	Manhattan,	Solomon City,
Chanute,	Holton,	McPherson,	Topeka,
Cherryvale,	Horton,	Minneapolis,	Washington,
Chetopa,	Hutchinson,	Newton,	Wellington,
Clay Center,	Independence,	Olathe,	Winfield,
Clifton,	Junction City,	Osage City,	Wichita.
Coffeyville,			

Applicants of mature age who, for lack of advantages, are unable to pass the full examination, may be received on special conditions.

Applicants for advanced standing in the course must pass examination in all the previous studies of the class to be entered; but, if they have pursued such studies in other institutions of similar rank, they may receive credit for their standing in those institutions upon presenting a certificate from the proper officer, showing that their course has been equivalent to that given here.

The first glimpse of a farmer's homestead gives us an index to the character of its inmates. No matter how plain the dwelling, if it be adorned with flowers, vines, and blossoming shrubs, we know that it is the abode of persons of taste and true refinement. Nor does this necessitate any great expenditure of time or money.—*Country Gentleman.*

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

Every Friday evening a students' prayer-meeting is held in a College society room, led by a member of the Faculty. On the Sabbath, students are expected to attend service at least once in the different churches of the city.

Branches of the College Y. M. C. A. and Y. W. C. A. hold weekly meetings at the College.

Once in each term the College Hall is opened for a social gathering of Faculty and students, in which music, literary exercises, and friendly greeting find place.

Public lectures by prominent men of the State are provided from time to time, as opportunity offers. All are free.

This is the season when farmers should remember the saying, "There is as much in the feed as in the breed." All stock should now be liberally and regularly fed. Keeping them right up in good flesh means less food wasted and better returns from the stock. Stock that are kept half starved the first of the winter and crammed with food later on to get them in condition cannot make good returns.—*Baltimore Sun.*

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, jewelry, and Gold Specacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

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THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 9, 1892.

NUMBER 19.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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The Experiment Station should be addressed through the Secretary.

II. THE INDUSTRIES AND THE INDUSTRIAL CLASSES.

BY PROF. FRANCIS H. WHITE.

IN a former article the industrial life of pre-historic man was briefly treated; in this, there will be a similar discussion of early civilizations. These first two articles are intended to be simply introductory to those that are to follow; for not until we consider the Aryan peoples of later times shall we find conditions sufficiently like our own to allow the forming of many conclusions that will be helpful in our thought of the present and the future.

EARLY CIVILIZATIONS.

Why was it that civilization developed earlier in some regions than in others? Its dawn was in the Tigro-Euphrates basin and the Nile valley, and there we know the soil was marvelously fertile; the crops were quite certain, owing to the periodical overflow of the rivers; the climate, warm, making but little clothing or shelter necessary; the natural barriers of rivers, desert, and mountains afforded protection against the attacks of barbarous enemies, and the navigable waters gave early inter-communication between the parts of the country.

The accumulation of wealth is a necessary preliminary to civilization. But this is possible among an ignorant people thrown upon their own resources only when such advantages as have been enumerated, stimulate them to regularity in the application of their labor, encourage them by giving abundant returns, and afford protection against the thieving propensities of their neighbors. Of course a people already highly civilized might be transferred to a most bleak and inhospitable locality, as were the Puritans to New England, and yet be able to wring from parsimonious nature not only a living, but wealth. The Puritans were able to do this, however, only because they were "the heirs of all the ages," and, therefore, in possession of the experiences of the past. Knowledge gave them power and made them not the slaves, but the masters of their environment. In every community civilization can neither be commenced nor advanced unless more is produced than consumed, and labor be thereby set free and encouraged to investigate, store knowledge, erect buildings, and make improvements.

What were the industries of those early times? The pictures upon the tombs, the records, literature, buildings, art objects, engineering works that still remain, enable us to answer the question with some certainty, though the limits of this article make details impossible. One country must stand for all. Egypt, perhaps the first civilized country, has many features in common with others that date their origin from a time almost as remote as her own. It would be interesting to trace the gradual improvement in the industries from their beginnings, but adequate data is wanting, and it will be understood that the conditions here described existed long before the Christian era, but, probably, not at or very near the commencement of civilization.

The main classes into which the people of Egypt were divided—some authorities say five, others seven—indicate the important industries: priests, warriors, husbandmen, shepherds, artisans. Agriculture had attained considerable advancement in very early times. The pictures reveal a knowledge of methods and conveniences we are apt to think are peculiar to our own—farm houses, sheds, stables, a vaulted chamber for grain. Sowing is represented as follows: "A plough drawn by two oxen goes first; next comes

the sower scattering the seed from a basket; he is followed by another plough; whilst a roller drawn by two horses yoked abreast completes the operation. The steward stands by superintending the whole."

The arts practiced by the ancient Egyptians embrace many of the principal ones of the present day, as may be seen by this partial list: stone-cutting; alloying; casting and soldering metals; glass-making; veneering; spinning and weaving; making wooden hoes, shovels, forks, ploughs; carpenter and cabinet work, and the tools used—axe, hammer, file, adze, handsaw, chisel, drill, plain, right-angle, rule and plummet; embalming; erecting gigantic buildings, such as the pyramids and the temples; constructing great engineering works, like the reservoir for retaining and evenly distributing the waters of the Nile. In many respects Egypt was somewhat in advance of other countries that were early civilized, and to it the civilization of modern times is greatly indebted.

The industrial and social system of ancient Egypt is so remarkable as to be well worth studying and especially as the main features are repeated in all oriental countries and to a certain extent in ancient Mexico and Peru in the new world. The classes previously mentioned into which the people were divided formed a pyramid of which royalty was the apex. These classes were not as rigid as the castes of India, and yet there was much in them that suggests the latter organization, for instance, but little intermarriage between classes, and the occupation of the father hereditary. The priests and the warriors owned two-thirds of the land, held all the state offices, and were relieved from taxes. The remainder of the land belonged to the king, who was, of course, untaxed.

The real cultivators of the soil, in distinction from the owners, were not allowed to leave the district where they lived without permission, and they were sold with the land. The artisans fared somewhat better, but it is evident that the classes below the warriors were at the mercy of the upper classes. The king could and did compel them to labor, not only on the great public works, but also on the pyramids (the tombs of the royal family), and other enterprises for his benefit exclusively.

We naturally inquire as to the origin and the reason for the continuance of such a system. In the first place, how did the kings, priests, and warriors come to monopolize the land? This cannot be answered with certainty, but it is not difficult to imagine how the king and warriors first obtained theirs—the king by force, fraud, or gift; the warriors by grants from the king. It was long the custom in Egypt to give every soldier a certain plot of land. By so doing the throne had a great body of supporters whose interest it was to suppress revolts at home and attacks from abroad. Religion had a firm hold on the people, and the priests used this sentiment to make their position secure. They taught that Isis, when on earth, gave to them as an inalienable possession a third part of the kingdom.

Now, the possession of land brought wealth to the holder and gave him the opportunity to improve mentally and physically, and thus by superior skill and strength to hold the advantage he or his ancestors had gained. The poor people, on the other hand, found their numbers constantly increasing, and, by an inevitable law, pressing closely on the means of subsistence; the labor market was overstocked, and the land-owners were, therefore, in control of the situation. With a spirit broken by ill treatment and insufficient

food, with a mind uncultivated and completely in control of a priesthood that taught obedience to authority as the prime virtue, it is not wonderful that they failed, and in fact made no great effort to better their condition. The philosopher, Buckle, mentions that in Asia, Africa, and portions of America nature dominates man, and that his conditions and actions are but the necessary results of food, soil, climate, and the general aspects of nature. Though we cannot accept all of his conclusions, it must be admitted that in those places, more than in Europe or the temperate regions of America, man has been very largely in the control of his physical environment.

The best authorities on Egypt are Wilkinson and Rawlinson. The Story of the Nations series give excellent short histories of the different countries of Europe and Asia. Buckle's History of Civilization in England contains an introduction that will be helpful in studying the philosophy of history.

SOME THINGS TO TEACH THE GIRLS.

BY PROF. J. T. WILLARD.

IT is the design of the writer to mention in this article three or four things which girls, and especially farmers' girls, should learn which are not included in that classic list beginning with, "To wear a calico dress and wear it like a queen."

Farmers' daughters have opportunities freely offered for which young ladies of the city are willing to pay well. One of these is learning horseback riding. This is not only a healthful and graceful accomplishment, but it is often of very great use to a woman, especially in an emergency. The girl should not only learn to ride, but learn how to saddle and bridle her horse, as well as to mount without assistance. It is not necessary to wait until the father is able to purchase a blue plush saddle with leaping horn, double girth, and silver mountings. Many a girl has learned to ride with nothing but a man's saddle, or even no saddle. Young girls often enjoy riding under circumstances which young ladies would think so adverse as to debar them the pleasure.

A farmer's daughter has no excuse for not learning to drive a team; and by driving must be understood, not simply holding the reins and using the whip while the team goes along a straight road, but turning in confined spaces, backing, guiding the vehicle to one side of obstacles in the wheel-tracks, and turning out to the best advantage when meeting others, not to mention controlling a frightened or spirited team with strength, coolness, and sound judgment. She should learn to harness a team also, to hitch it to the farm wagon or the carriage, with farm harness or buggy harness.

Whether a girl learns to harness a horse or not, she should at least learn how to unharness. How often do we hear of some lady unhitching and unharnessing, in which operation every strap of the harness was unbuckled; or if by chance one was overlooked, it was one which the man who ordinarily did the work was accustomed to loosen. Then to finish the work of anarchy the pair of harness in its dismembered condition was thrown in a confused, tangled heap which would require a man twenty minutes to put to rights. This is an extreme case probably, but not an unknown one, and the milder forms are always with us. Seven times out of ten the inexperienced woman who loosens no more buckles than are necessary will select the off side of the horse as the field for action.

There is no reason why nearly all girls might not learn this bit of useful knowledge, and there is a reason beyond the convenience to themselves, why they should. No true lady will cause another person an inconvenience, unnecessarily. On this ground no lady, who has had opportunities to learn to unharness a horse, has any right to do it in a careless or vexatious manner, even if it is

"only the hired man" who will be goaded to words not usually seen in print by her inexcusable ignorance.

These may be taken as examples of the kind of knowledge which girls ought to have, but seldom get. They should learn how to do any of the numerous small things about a house, involving the use of tools, such as sharpening knives, sawing boards, driving nails, hanging pictures and window shades, and many other things which are constantly coming up. The writer remembers the distress of a lady whose front-door lock was broken, when everything it needed was a drop or two of oil. A woman may not need to use this knowledge often, though the chances are that she will, but she will at least be able to judge better of what is necessary, and whether the person she hires to do the work is doing it properly.

One great reason why girls do not learn these things is that fathers do not give them the same encouragement in it that they do their sons. If a father would explain the action of his self-binding harvester to his daughter as well as to his son, and make this kind of instruction a part of his daily practice, the daughter would not have much trouble with the sewing machine, and the father would not be called upon to oil a squeaky door-hinge, or to drive a nail for the dish-pan.

While the girls are learning some things usually regarded as boys' knowledge, their brothers cannot be doing better than learning the elements of hand and machine sewing, plain cooking and clean dish-washing.

THE SUCCESSFUL MAN.

Ella Wheeler Wilcox says that if she were asked to define the meaning of a successful man she would say: "A man who has made a happy home for his wife and children. No matter what he has not done in the way of achieving wealth and honor; if he has done that he is a grand success. If he has not done that, and it is his own fault, though he be the highest in the land, he is a most pitiable failure. I wonder how many men in the mad pursuit of gold, which characterizes the age, realize that there is no fortune which can be left to their families so great as the memory of a happy home."

TWO WAYS OF FARMING.

There are two ways of farming, says James K. Reeves,—one to make a living, the other to make money. In farming to make a living, a man may have a hundred acres of land and but little capital. Then he grubs along with poor stock, poor tools, and little help, and by close management and rigid economy he holds his own. With capital enough to buy stock, such implements and labor-saving machines as would enable him to give the best cultivation with the minimum of labor, with the ability to hire such help as was needed and to hold his crops for advantageous sales, he could farm to make money.—*American Homestead.*

WINTER CARE OF HORSES.

The first thing to do for your horse is to see that he is comfortable. A stable free from leaks, free from draught; good dry floor for his feet; plenty of good clean bedding.

If you wish him to look sleek, have him well blanketed, and give him extra care with comb and brush. Always take his blanket with you when you drive him, and if he is to stand a few moments throw it over him.

Examine his feet often, keep them free from ice, and his shoes well sharpened.

Don't give him warm water to drink; but don't let it be ice cold. In either case it will be a misery to him.

If he has chopped feed and meal or bran, it will be as well to have it mixed with hot water, for then it will be a comfort to him and will be eaten before it can be frozen.

Naturally he will require more food during the winter than in the summer, and corn will not harm him in the cold weather—its heating and fattening qualities being needed.

In winter it will pay well to attend to the little things which make for the horse's comfort.—*Maryland Farmer.*

THE FEEDING PROBLEM.

There is no more momentous problem occupying the minds of farmers, dairymen, and poultrymen nowadays, than that of economic feeding. It is of all matters one of the very greatest importance, and can no longer be regulated to the ignorance and the indifference of the routine pursued in years and in ages past. The time was when grass was of little value as a marketable crop, and corn so cheaply and easily grown on land generously supplied with the elements of plant growth, that men took no thought either of yesterday or tomorrow, and fed grass one half the year and corn the other. But now we discover that whilst both of these are fit for food they neither form of themselves a fitting food for the growing beast, or a perfect food for a growing or maturing animal. Digestion has much to do with assimilation, but this is not all that is called for. Warmth, comfort, peace, an abundance of good water, and quite a number of other things are called into requisition both to aid the one and promote the other. But after all, if the variety of assimilable foods are not forthcoming in the conditions and proportions called for by the nervous, muscular, and bony structure of their building up and development, the inevitable consequence is, must be, an imperfect animal even at mature age.

Now the business of the breeder and the feeder is to discover the kinds of food, which in their several varieties and proportions are best adapted to mature his steers, wethers, hogs, or other stock in the shortest time with the heaviest weight of desirable flesh, that he may put them on the market without too long a delay and make room for others coming along. He has in this effort to bear in mind that so much of the food is necessary to support life, and so much more to promote growth; and that as these are forthcoming and the surroundings of the animals are pleasant and comfortable so as to aid and assist in healthful digestion, so will developments profitably progress.

To these all, however, must be added the skill and the intelligence of the prior breeder. Give all the above employed on mountain sheep, wild hogs, or Texas steers, and, whilst their effect may be apparent, they will not begin to tell in the same way that they will if employed on pure blooded stock or its grades. It may be stated as a fact, that either high grades or full blooded stock will make fully fifty per cent more gain under skillful treatment than will native stock of any kind; hence the economic farmer will see that he cannot afford to dilly-dally with the latter, not even in a small degree. If men of the past have bred for us by all the accumulated experience, skill, and judgment the ages have afforded them a race of better stock, it does look very stupid on our part to refuse to avail ourselves of the legacy. Indeed, no farmer, rich or poor, can afford to fritter away his time, either on native stock or scrub methods. The feeding problem will avail but little, no matter how well known or thoroughly discussed and worked out, unless the basis in good blood is made the starting point and foundation.—*Colman's Rural World.*

NOT LUCK, BUT WORK.

"Twenty clerks in a store, twenty hands in a printing office, twenty apprentices in a shipyard, twenty young men in a town, all want to get on in the world, and expect to do so," says an old merchant.

"One of the clerks will become partner, and make a fortune; one of the compositors will own a newspaper and become an influential citizen; one of the apprentices will become a master builder; one of the villagers will get a handsome farm, and live like a patriarch—but which one is the lucky individual? Lucky! There is no luck about it. The thing is almost as certain as the rule of three. The young fellow who will distance his competitors is he who masters in business, who preserves his integrity, who lives cleanly and purely, who devotes his leisure to the acquisition of knowledge, who gains friends by deserving them, and who saves his spare money. There are some ways to fortune shorter than this dusty old highway, but the staunch men all go this road."

Good roads are a great benefit to a farming community; they, by time saved, shorten the distance to markets, save wear and tear of the harness and vehicles. In localities where good roads are the rule farms are more valuable, and there is less complaint that farming doesn't pay.—*Baltimore Sun.*

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

A large box of periodicals is about ready for the binder.

The Library has received twenty-five volumes of public documents.

Prof. Rain has been confined to his bed for three days by la grippe.

Many new faces, with nearly all the old ones, are seen in classes this term.

Assistant Horticulturist Mason has been off duty for a week past battling with la grippe.

Col. Anderson, of Manhattan, gives the Library twelve volumes of public documents to fill deficiencies.

The Music Department has received three more of Prof. Brown's prismatic charts, which complete the series.

Prof. Brown goes to Leavenworth this afternoon in answer to a telegram announcing the serious illness of his brother.

The Chemical Laboratory is crowded this term, and Professors Failyer, Willard and Breese have all they can do to care for the large classes.

Messrs. Jessop & Sons, 91 John Street, New York, have presented the Mechanical Department with a hundred pounds of their best tool steel.

Mrs. Kedzie returned on Saturday last from Lansing, Mich., where she was called by the death of her mother-in-law, Mrs. R. C. Kedzie.

James W. Wilson and wife, of Chicago, were guests of Prof. and Mrs. Nichols last week. Mr. Wilson is editor of the *Farm, Field, and Stockman*.

Dr. R. R. Dinwiddie, of the Arkansas Experiment Station, spent several hours on Tuesday looking over the Veterinary Department and its equipment.

President Fairchild has been confined to his bed all week with complications resulting from the grip, but hopes to be able to resume official duties some time next week.

Mrs. Hood's mother, Mrs. S. N. Benight, died on Monday, December 30th, of pleuro-pneumonia, at her home, near Terre Haute, Ind. Mrs. Hood is expected home daily.

The College will be represented at the annual meeting of the State Board of Agriculture at Topeka, January 13th to 15th, by President Fairchild, who will read a paper on "The Farmer's Place in the General Production of Wealth;" Professor Georgeson, "What Does Science Teach Us in Cropping?" Professor White, "Taxation;" Professor Mayo, "Lumpy Jaw in Cattle."

The sixth division of the Third-year class entertained the chapel audience yesterday afternoon with the following programme: Minnie L. Romick, "Liberty and Prohibition;" Chas. B. Selby, "The Spell of the Past;" Winnie L. Romick, "Success;" F. R. Smith, "Educate the Masses;" Jessie M. Stearns, "The Law of Rest;" W. E. Smith, "The Advent of the Ballot Reform;" W. O. Staver, "Character of LaFayette;" George W. Smith, "Socialism."

Professors Failyer and Mayo returned on Monday from their collecting tour in Northwestern Colorado. Snow was falling when they reached Antlers, and two days later, when ready to leave with their mule train for the hunting grounds in the Trappers' Lake region, the snow was from two to three feet deep. Progress was necessarily slow, four days being consumed in reaching the grounds, and as many more in returning. Four elk—a bull, two cows, and a calf—were the result of a four-days' hunt. One of the cow skins was lost, but the other three were saved in a good state of preservation, and will soon be mounted for the museum.

THE WEATHER FOR DECEMBER.

The mean temperature for December, 1891, was 37.97°, which was 8.16° above normal. There have been only five warmer Decembers, while twenty-eight have been colder, the extremes being 41.68°, in 1877, and 20.29°, in 1876. The highest temperature for the month was 67°, on the 2nd; the lowest, 5°, on the 26th, a range of 62°. The warmest day was the 2nd, the mean for the day being 58°; the coldest day was the 25th, the mean being 12.5°. The greatest range for one day was 36°, on the 26th; the least, 5°, on the 25th. The mean temperature of the observations at 7 A. M. was 31.19°; at 2 P. M., 47.13°; at 9 P. M., 36.77°. The mean of the maximum thermometer was 49.39°; of the minimum, 27.81°; the mean of these two being 38.6°.

There were fifteen cloudless days; two entirely cloudy; nine more than one-third cloudy; and five more than two-thirds cloudy.

The mean barometer for the month was 28.82 inches, which was .02 inch below normal. The maximum was 29.48 inches, at 9 P. M. on the 11th; the minimum 28.18 inches, at 7 A. M. on the 28th, a range of 1.3 inches.

The precipitation was 1.09 inches, falling on the 2nd, 5th-6th, 13th-14th, and 15th. This does not include the rain on the evening of the 31st. This is .24 inch above the normal, the highest rainfall being 2.25 inches in 1862, and the lowest, .02 inch in 1889.

The wind was from the south-west thirty-two times; north-west, seventeen times; south, sixteen times; northeast, ten times; east, six times; south-east four times; west four times; north, once; and a calm three times. The total run of wind for the month was 10,030 miles, a mean daily velocity of 323.25 miles, and a mean hourly velocity of 13.48 miles. The highest daily velocity was 632 miles on the 21st; the lowest, 65 miles on the 12th. The highest hourly velocity was 48 miles, between three and four o'clock on the afternoon of the 21st.

Below will be found a comparison with the preceding Decembers:

December.	Number of rains.	Rain in inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	3	1.11	25.96	56	-6	28.82	29.48	28.18
1859	1	0.30	20.90	62	-8	28.82	29.48	28.18
1860	3	0.50	32.43	52	18	28.82	29.48	28.18
1861	3	1.00	32.19	65	0	28.82	29.48	28.18
1862	3	2.25	39.50	65	14	28.82	29.48	28.18
1863	4	2.17	27.93	59	-13	28.82	29.48	28.18
1864	4	1.11	27.07	58	-6	28.82	29.48	28.18
1865	4	2.02	28.90	57	4	28.82	29.48	28.18
1866	2	0.51	35.44	62	15	28.82	29.48	28.18
1867	3	0.81	24.86	57	-16	28.82	29.48	28.18
1868	4	0.16	30.05	58	-3	28.82	29.48	28.18
1869	4	0.45	29.93	63	-11	28.82	29.48	28.18
1870	1	0.35	24.17	53	-6	28.82	29.48	28.18
1871	3	0.95	21.02	60	-10	28.82	29.48	28.18
1872	4	1.67	28.71	65	5	28.82	29.48	28.18
1873	3	0.67	31.66	58	0	28.82	29.48	28.18
1874	2	0.78	38.22	72	4	28.82	29.48	28.18
1875	2	0.50	20.29	69	-11	28.82	29.48	28.18
1876	3	1.55	41.68	67	13	28.82	29.48	28.18
1877	4	0.91	21.35	57	-7	28.82	29.48	28.18
1878	2	0.62	24.75	56	-10	28.82	29.48	28.18
1879	2	0.28	24.40	65	-16	28.82	29.48	28.18
1880	3	0.53	38.48	65	16	28.82	29.48	28.18
1881	3	0.44	29.59	62	-7	28.82	29.48	28.18
1882	2	0.27	33.04	66	2	28.82	29.48	28.18
1883	5	0.33	21.67	57	-7	28.82	29.48	28.18
1884	4	1.09	33.13	64	-5	28.82	29.48	28.18
1885	2	1.58	24.39	62	-5	28.82	29.48	28.18
1886	3	0.80	26.09	56	-9	28.82	29.48	28.18
1887	3	1.22	31.39	64	10	28.82	29.48	28.18
1888	0	0.02	41.50	75	0	28.82	29.48	28.18
1889	2	0.18	33.21	72	3	28.82	29.48	28.18
1890	5	1.09	37.97	67	5	28.82	29.48	28.18
1891								
Sums	94	28.12	983.77	2046	-57	576.82	586.43	565.40
Means	2.85	0.85	29.81	62	-1.7	28.84	29.33	28.27

WIND RECORD.

December.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	8016	259.55	576	51	10.81	43
1890	6414	206.90	323	82	8.62	32
1891	10030	323.55	632	65	13.48	48

GRADUATES AND STUDENTS.

C. H. Bliss, student in 1887-8, is a piano tuner at Ottawa.

C. A. Latham, Second-year in 1883-4, is in the mail service at Wichita.

P. E. Westgate, Second-year in 1890-91, returns to classes this term.

Lyman Harford, Second-year in 1890-91, is a successful teacher at Wabunsee.

Cards received announce the marriage of J. B. Brown, '87, to Miss Minnie L. Akin, January 4th,

at Topeka. Mr. and Mrs. Brown will be at home after January 20th, at 149 North Summer street, Nashville, Tennessee.

C. J. Peterson, Third-year in 1890-91, teaching near Randolph, visited at the College on Monday. He plans to return next year.

MEANS OF ILLUSTRATION.

AGRICULTURE.—One hundred and eighty-five acres of land used for farm purposes, with hundreds of plots under experiment in grain, grasses, and forage crops; and illustrating various methods of culture and rotation.

A barn 50 by 75 feet, expressly arranged for experimental uses; and connected with it a general-purpose barn, 48 by 96 feet, for grain, hay, horses, and cattle. Both buildings are of stone, and are provided with steam power and equipped with improved machinery for shelling, grinding, threshing, cutting for the silo, and steaming.

Two piggeries, one of ten pens for experimental uses, and one of six pens, with separate yards, for general purposes.

An implement house 22 by 50 feet, of two stories, and corn-cribs.

Shorthorn, Aberdeen-Angus, Hereford, and Jersey cattle; Berkshire and Poland-China swine.

Farm implements of improved patterns.

Collections of grains, grasses, and forage plants.

Buildings, stock, and equipments, are valued at \$26,000.

HORTICULTURE AND ENTOMOLOGY.—Orchards containing 200 varieties of apples, 30 of peaches, 30 of pears, 20 of plums, 30 of cherries, and five of apricots.

Small-fruit garden, with 200 varieties of small fruit, including blackberries, raspberries, goose berries, currants, and strawberries; and vineyard with 100 varieties of grapes.

Forest plantation of twelve acres, containing twenty varieties of from one to twenty years' growth.

Ornamental grounds, set with a variety of evergreens and deciduous trees. Sample rows, containing about 150 varieties of ornamental and useful shrubs and trees, labeled.

Vegetable gardens, with hot-beds and cold-frames, and experimental beds. Practice rows for student's budding, grafting, cultivating, and pruning.

Two well-planned and furnished green-houses of three rooms each, stocked with a collection of native and exotic plants.

Museum, containing a collection of woods from American forests, and a large series of specimens in economic and general entomology.

Value of property, exclusive of orchards and grounds, \$13,000.

CHEMISTRY AND MINERALOGY.—Eight rooms, fitted with tables and apparatus for a class of eighty students in qualitative analysis, sixteen in quantitative analysis, including necessary facilities for assaying, with a mineralogical collection and general illustrative apparatus. Value, exclusive of building, \$8,000.

BOTANY.—A general herbarium, consisting of a large collection of plants of the United States and other countries; a Kansas herbarium, containing specimens illustrating the distribution and variation of plants throughout the State; also twenty-eight compound microscopes, four dissecting microscopes, tools, reagents, wall-charts, etc. Valued at \$3,000.

GEOLOGY, ZOOLOGY, AND VETERINARY SCIENCE.—A general museum well fitted with cases containing valuable collections of mounted Kansas mammals and birds, with mounted skeletons of wild and domestic animals. The largest collection of Kansas fishes and mollusks in the State. Kansas reptiles and batrachians, salt-water fishes, and vertebrates in alcohol. Collections of Mound-builders' and Indian relics. Kansas fossils and rocks, typical of the geological ages found in the State.

In Veterinary Science: A laboratory fitted with apparatus and reagents, for the study of disease. A collection of charts, models, and anatomical preparations, illustrating healthy and diseased

structure. Value, including general museum, \$4,500.

DRAWING.—Models, plaster-casts, patterns, easels, and implements. Valued at \$1,400.

PHYSICS.—Physical apparatus, meteorological instruments, etc. Edelman's dynamo electric machine, Thompson's potential galvanometer, Coulomb's torsion balance, with numerous accessories, sling psychrometer, and anemometer. The value of the whole is \$4,000.

MATHEMATICS AND SURVEYING.—Transits, plane-table, compasses, levels, chains, models, etc. Valued at \$1,250.

MECHANICS AND ENGINEERING.—Carpenter shop, with separate benches for tools for forty-five students in each class, besides lathes, mortising machine, circular saws, band saws, planer, frier, boring machine, grinder, and general chest of tools for fine work. Power furnished by a ten-horse power Atlas engine.

Shops for iron work, with forges, vises, drills, lathes, etc. Testing machine, charts and models.

Inventory of material and apparatus in both shops, \$8,300.

KITCHEN LABORATORY, with ranges, cooking utensils, dining room furnishings, dairy furniture. Valued at \$600.

PRINTING.—Office with thirty pairs of cases, large fonts of six-point, eight-point, ten-point, and eleven-point Roman type; a good assortment of job type and brass rule; a Babcock cylinder press with steam power, a new Liberty quarto-medium job press; a Gordon eighth medium; a mitring machine, a rule-curving machine, and a paper cutter. Value of equipment, \$4,300.

SEWING ROOMS, with seven machines, models, patterns, and cases; worth \$600.

MUSIC ROOMS, with four pianos, four organs, and other instruments; valued at \$2,000.

A **LIBRARY,** carefully selected and catalogued, containing over 11,000 bound volumes, and 3,000 pamphlets. A reading-room is maintained in connection with the library, where may be found on file forty-five of the leading literary, scientific, technical, and agricultural periodicals, and several hundred newspapers, including the daily and weekly papers from all parts of the State. Value of Library, \$20,000.

ARMORY, containing one hundred and fifty stands of arms (breech-loading cadet rifles, caliber .45), with accoutrements; two three-inch rifled guns; also swords, uniforms, etc. Value, exclusive of arms, \$1,000.

HAVE A PURPOSE IN LIFE.

Cultivate all along the lines of thought and endeavor. Improve every faculty of brain and body; make the most of yourself and all your possibilities, but have before you some single purpose to which all other roads lead. Select your goal and make all other routes lead up to it; that is, prepare yourself for some particular work in life; have a specific aim. Resolve thus: I will get a good, solid, all-round education, so I can be a full woman and a thorough teacher, honoring a profession which I honor; but I will study Latin or Greek as a specialist, bringing all my other training to bear upon that one point. Or, I will fit myself as a special teacher of literature or mathematics. If you so do, you have the satisfaction and power that comes of knowledge. You know you can do many things well, but one thing excellently; and concentration of thought and will-power on the one thing gives strength therein. If your talent be music, concentrate your forces there; or art, perfect your hand and eye there till you can cope in the markets of the world with other artists. Perhaps your inclination is toward fine needlework, dress-making, or even plain sewing. Whatever it be, learn to do it well. Doing well the thing you do means life's success. Some there are who desire to be housekeepers, cooks, and domestic servants. If such would only appreciate to the full the value of training for their work, what a change in the service over our broad land! We women have such quick intuitions that we often jump at conclusions, and more often than not at proper ones, that we undervalue all the dull ploddings between stations that go to the proper preparation for our work. To-day, with our business colleges, our conservatories of music, our cooking clubs, our normal schools, women are being trained in much broader lines than ever before. And yet the narrowness of our training for any specific

end is forced upon us every day. Most boys of fourteen begin to settle, at least in their own minds, what they "want to do" when they are grown: and you early see the tendency of the boy reared on the farm if he intends being a farmer. It manifests itself in the great interest he takes in crops, in raising stock, and all that goes to the making of a good farmer. If, on the contrary, he wants to try other avenues, how early we see him poring over books in the odd off-hours! How he cultivates the schoolmaster, seeking long rambles with him, borrowing good books, and, unconsciously almost to himself, laying the foundation for being what he hopes! All boys do not reach their goal, but almost all boys strive for it. Surely all who make success of life do. The exceptional girl has a special purpose. This exceptional one is she of whom you hear day by day as doing some grand work for the uplifting of the world—the result of purpose; who to-day is a successful physician, lawyer, preacher, teacher, stenographer, artist, housekeeper, wife, mother. For, believe me, girls, you need careful and deep training to be a wife, to be a mother, to hold in your keeping the nations to be. Among all your gettings get knowledge that should fit you for wifehood and motherhood. How blindly we rush into both—how unprepared we are for either! Women look forward to both as their ultimate goal. Then, girls, prepare for such goal; prepare to be a specialist—the very best of your powers brought to bear upon the making of a good wife for a good man. Be sure the man will come along soon enough; so don't let your zeal lead you into hunting. There is always a demand for good material. Your business is to fit yourself properly for the situation you intend filling, whether it be money-getter or simply home-keeper. Being fitted, the situation is sure to be there. But every woman should prepare herself to sustain herself honorably in some field of the world of labor, no matter how full of good prospects her life may be. She does not, as I heard a noble woman say, want to be always a little canoe in the wake of, and tugged along by, some great steamer of a man.—*Farmers' Home.*

REAL ROAD WORK WANTED.

The offer of Capt J. B. Ford to advance \$3,000 to improve the road between Hite's and Tarentum was an encouraging attempt to make a start in the building of durable roads. If manufacturers and leading citizens generally would interest themselves in the subject of road reform it would not be long before decisive progress would be made in that important work. The main thing is to secure a practical demonstration by examples of durable and solid roads. When such roads can be found in every county, the farmers will very soon convert their opposition into an urgent demand for the universal extension of such highways.—*Pittsburg Dispatch.*

FIRST STEP TOWARD BETTER ROADS.

The first step toward securing better roads in this country is the development of public sentiment to a realization of their present shocking condition. More progress has been made in this direction during 1891 than in any previous year.

The road question has been the theme of constant and thorough discussion by the newspapers in every part of the country. The winter season aggravates the troubles caused by bad roads, and more is said about them now than in any previous winter. A dispatch from Burlington, Ia., says:

"It would take a round million dollars to even up the losses in trade to the merchants, shippers, and farmers in Iowa on account of the mud blockade which exists not only in Iowa, but all over the Mississippi valley. For two weeks country roads in Iowa, Missouri, and Illinois have been hub-deep in mud, and the farming communities have been virtually pad-locked on the farm. As a result, merchants depending on country trade have suffered great financial loss, especially in holiday trade, while the farmers and shippers have lost by inability to market their produce. It is feared many failures among country merchants may result."

The Indianapolis Journal says that the conditions in Indiana during the past month have been about the same as in Iowa, and considers it safe to say that bad roads have injured business quite as much in one state as in the other. It will be a great thing gained to have people convinced that bad roads "don't pay." We shall never good ones until that is accomplished. Happily, rapid progress is now making in that direction.—*New York Post.*

No domestic animal should ever be kept in a dark stable. Give plenty of good wholesome sunlight. The eyes of many animals are permanently injured by the sudden transitions from inner darkness to outer sunshine. More than this, the general health of animals is deleteriously affected by deprivation of nature's great prophylactic and disinfectant—purifying sunlight.—*South-ern Livestock Journal.*

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in E. Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, jewelry, and Gold Specacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. WEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE.—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

LESLIE H. SMITH, retailer exclusively of Boots, Shoes, and Rubbers, offers a good assortment of stylish and desirable foot wear at the lowest prices for which reliable goods can be sold. Men's dress shoes, \$1.90; ladies' fine dongola shoes, \$2.00.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. Schison. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

O. HUNTRESS, Dry Goods, Groceries, Queensware. Free delivery. Prices always as low as good business methods will warrant. The trade of Professors, Students, and all connected with the College especially solicited.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 16, 1892.

NUMBER 20.

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
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Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

FUEL NOTES.

BY PROF. O. P. HOOD.

TO the man in this latitude who tries to keep cool in summer and warm in winter, ice and coal bills are a constant expense. The ice bill hardly ceases to exist before the coal bill begins to double up its figures into two or more columns, which march against one's income, sure to capture a goodly portion of it. These bills always seem larger than they ought to be. The paragraph concerning the ice man's scales which make a large or small piece weigh your allotted 40 pounds, has passed to the land of dead jokes, and fails to relieve our feelings.

* *

Economy in the use of these necessities is a more fruitful field of investigation than examining the accuracy of the coal and ice man's scales. The amount of fuel thoughtlessly wasted is enormous. The common heating stoves, taking their average condition, have an efficiency of about 30 per cent. Thirty cents' worth of heat is got for every dollars' worth of coal put in. Much better results can be had. An efficiency of 80 per cent ought to be obtained. The most common mistake is that coal is all that is necessary to make a fire. Air is just as necessary as coal, and a proper amount of air is not obtained by the usual method of keeping fires. At least 150 cubic feet of air should be applied to each pound of coal burnt, and nearly half of this should meet the gases after they have passed through the coal. This can only be obtained by allowing some air to escape uncombined through the bed or admitting it above the burning coal. Smoke is always an evidence of imperfect combustion, and cannot be consumed after it is once formed.

Generally too thick a body of coal is carried in the ordinary stove, the supply of fuel is too irregular, and combustion is imperfect for want of air. Imperfect combustion gives but one-half the heat that perfect combustion will give. A good fireman is really a skillful person, and not to be had in every one who tends a fire. More profit can be had by taking thought of the necessary conditions for perfect combustion of coal in your stove than growling about the weight of your last ton of fuel.

* *

The enormous waste of coal in ordinary house heating has given opportunity for the most indirect methods of heating which are able to compete with the ordinary stove. If this were not true, the present talk of electrical heating would be impossible. To burn coal at a central station, transform its energy into steam, then into mechanical energy, and again into electrical energy, only to be changed back again into heat after it has been transmitted to your homes, seems a very round-about way of obtaining warmth. But because at the central station coal can be burnt more scientifically, and at the same time a far cheaper grade of coal used, and because we usually waste so much in our stoves, these causes give advocates of electrical heating encouragement enough to try the experiment on a commercial scale.

* *

The use of coal is a comparatively modern development. While the ancient Britons knew of its use, and their successors in the land of the Briton used it a little, still, in the face of the immense forests, coal was little esteemed. In 1306, its use was prohibited in London as a nuisance, but in 1321 it began to be an important article of commerce. Not till 1619 was coal successfully used in metallurgical operations. Wood was our

first fuel; coal has been our main supply in modern times, but will it always be? But few years has the world known liquid fuel. Our grandfathers tell of the first coal oil. This fuel has superseded coal in many places. It is pumped from Cleveland, Ohio, in a pipe line direct to Chicago to take the place of coal in furnace and stove. Still fewer years have we known natural gas as a fuel. This, too, is supplanting coal every day. Manufactured gas, while made from coal, is said to be the coming fuel by many. It is made for two cents a 1000 feet, and is now competing with natural gas. Electrical heating is in the field, utilizing the fall of water to heat our homes. What will be the real fuel of the future? Coal no longer has full control of the field.

* *

Is it really impossible to grow one's fuel each year on these broad western prairies? Is there nothing that can be grown for fuel to better advantage than wood from trees? A great deal of attention has been given to developing corn as a grain. We have a multitude of varieties. Why not develop the cob, and raise it for fuel? Two pounds of cobs will heat as much as one pound of coal if properly burnt. With our present kinds of corn, a bushel of corn is worth thirty-five pounds of coal, which, with coal at \$6.00,—as it is in many places,—is worth ten cents as fuel. If this is true of corn not intended for fuel, and which sometimes brings but twelve and one-half cents, what might be expected of corn which had been developed for that use? Besides, the hauling of corn to town and hauling coal back would be done away with.

PLANNING AHEAD.

During the winter there is usually more or less time that can be spared and that can be used to a good advantage in planning ahead. An important item with all lovers of farm work, whether in the field, the orchard, or the garden, is to get the work done in good season; and one of the principal advantages in having the work planned out ahead is the saving in time so that the work can be pushed along as rapidly as possible when the season fairly opens.

There are more or less what may seem small items, that can be done in advance that will save time when the busy season arrives; and if the work is properly planned ahead, many of these, being determined upon, can be arranged during the winter to a good advantage. With these done and the plan of work already arranged, the work can go along without loss of time. With a number of garden crops, earliness is an important item, not only in seeding, but to have ready for market, and in order to take advantage of the first opportunity in the spring to plant, more or less arrangements must be made in advance.

Seeds must be purchased and tested, manures applied and often a supply of commercial fertilizers secured ready to apply, as in many cases the best time to apply commercial fertilizers is just before the seed is planted, working well into the soil. During the winter is a good time to study varieties, to plow the garden so as to keep all of the ground occupied during the growing season, and to keep up a supply as fully as possible. It is not best or necessary to plant a long list of varieties, a few standard varieties to keep up a succession and lessen the number of plantings being all that is necessary. When time will admit, it will be found a good plan to try some of the novelties in order to ascertain their value, but it is usually not best to depend to largely upon them.

Of course, a day's work cannot be laid out, but by knowing what is to be, where and how much of the various crops are to be planted, and all the needed arrangements are made in advance, a great saving in time can be made, and the next two months is a good time for planning and arranging.—*Correspondent Our Country Home.*

THE TENDENCY IN FARMING.

It has been stated by close observers of wage earners and the various industries, that in none of them do we find so little progress as in farming pure and simple. In the improvement of breeds of cattle, and horses, and swine, and sheep, and fowls there has been a most marked progress. Varieties of fruits, large and small, have been so improved that it is now possible to grow every class of fruits successfully in all parts of the country in at least one variety of a class.

Implements and farm machinery also have been so improved that it is now possible to perform farm labor at much less cost than heretofore, and with greater rapidity.

But have methods of labor improved in the same ratio? is the question put to us by these students of political economy.

It is true that most of the old-time superstitions in connection with farming have been abandoned, and their loss not felt: planting during certain phases of the moon has few adherents at this time.

There are, however, many things wholly in the line of progression which seem to have been overlooked by the farmers as a rule.

Chief among them is that almost total lack of business qualities, the possession of which enable the farmer to hold his own with other wage earners.

And it seems more than strange that this should be so when the result of business ideas are so apparent in other industries. Then again, the farmer seems loth to embrace ideas which will enable him to prosecute his work to the best advantage; he will labor in the time-worn ruts pursued by his ancestors regardless of consequences, and as regardless of the fact that he is getting poorer every day.

It has long been a question among those who have studied farming and farmers, whether the condition of the soil-worker is not more largely due to himself than to any other one cause.

May there not be some truth in this, my friends? May we not be so far behind the workers in other fields that we are in danger of losing all that we have gained?—*Our Country Home.*

THE FARM RECORD.

Every farmer should have a record book and properly keep a memoranda from day to day, and at the close of the year run up the data and notations for use in planning the crops for next year. This properly done is of as much value as a well-filled purse; in fact it would tend to keep the purse well filled. In this record one gathers experience as fast as the experience develops itself. It keeps in black and white ready at any time for reference. It is the guide board for the next year. It says in just so many words, plant corn here, but manure heavily first. Sow wheat here, rye here, oats here, garden here, and indicates the fitness of every field for some crop which will pay on that special soil. The man who has a poor memory (and it is a common disease) has in this book a chance to do as well as the best man, if he only has a memory which will lead him to make and use the book.—*American Homestead.*

A correspondent of the *Holstein-Friesian Register* says: "For two generations I have had my bulls dehorned, but not the cows, and, as these never get out of my field, are thus served by none but my own bulls, and now I have a pure-bred Holstein-Friesian bull calf about eight months old that is perfectly hornless, just like a Polled Angus. Did you ever hear of such a case, and will it perhaps be the means of breeding that kind of cattle hornless hereafter?"

The farmer who contrasts his business unfavorably with that of the shop-keeper in town, would do well to make a computation of the cost of all his country advantages, and see what he would have to pay for the whole at market prices.—*Country Gentleman.*

Generally more goes to waste on farms than in any other occupation, yet no occupation offers such a profitable method of utilizing the rubbish as farming, for it may all be turned into valuable fertilizers. Nothing should be allowed to go to waste on the farm.

The farmer who does not keep an account cannot tell whether any crop he raises gives a profit or not. What other branch of business is there in which such indifference is manifested?

POOR ROADS MUST GO.

Civilized nations have good roads—savage and unenlightened countries do not. The highways of travel are gauges of the progress a people have made from barbarism to civilization.

How are your roads?

The price at which a farm will sell is regulated by its nearness to market and the quality of its neighborhood roads. To increase the selling price of your farm, work for good roads.

Good roads in his township will benefit the farmer more than he ever dreams of.

On an average, the farm products of this country must be hauled by wagon eight miles to market. There is more room for saving in this wagon haul of eight than in a railroad haul of 1,000 miles. The railroads of the country charge only eight-tenths of a cent for hauling a ton a mile.

There is abundant evidence that if the average earth highway was made into a good gravel road, the same horse-power could draw four times as great a load as now.

On a good road a grade of only nine feet to the 100 doubles the draft. How much would it save you per year if the top of that hill were shaved off and the earth were put in the hollow?

Now is the time to agitate for good roads. Take off your coat, roll up your sleeves and wade in, determined to wake up your neighbors until they, too, will not longer endure the strips of mud that are now called highways. The first step in good road-making is to awaken a lively public interest. We must stir up a general appreciation of good roads. Talk, read, give facts. Best of all, get a stretch of good graveled road for an object lesson. The first graveled road should be that nearest the village; there most will use it. Always begin at the village and work out.

In order to obtain any reform—good highways fewer dogs, better schools, more economical county government, or the establishment of farmers' institutes in place of corner grocery stores matches—it is necessary first to overcome what may well be termed public inertia. Some people suppose that this indisposition to move, this contentment to rest on the present ground, this mental and moral inertia, is simply negative; if not capable of any good, at least incapable of any harm. This is a mistaken notion. Nothing is more deadly; nothing has greater capacity for harm. It is the ever-present and ever-active foe to progress; it holds mankind in ruts; it holds them still while abuses pile upon them and crush them; it is the opportunity of thieves and tyrants. The intelligent, progressive man must always contend against this public inertia. Enthusiasm is the only weapon to use. Thank God for the intelligently enthusiastic person! It is he that keeps the world moving, that pushes mankind on to a higher ground.

For a starter, here is a recipe that will make and maintain a fairly good road at all times of almost any material excepting quicksand or prairie mud: First, grade it so perfectly that no water can remain on the surface. Second, pike the bad places.

HAVE A PLAN.

The following from the current issue of the *Kansas Weekly Capital* will apply to other things besides landscape gardening:—

The one great misfortune which causes more good work to go to waste in this world than anything else is the want of definite plan. People work along without knowing what they want finally to accomplish; they keep nervously moving without knowing where they want to go; they keep living from mere force of uncontrollable circumstances without the faintest idea of what it is for; and so their work, their activity, their lives, are lost. Imagine a man trying to go to town by simply moving when he has never taken a thought as to where the city is located, and when he would not recognize it if he should come thither. Yet this is the spectacle that our work too often furnishes.

To get a good home, nicely laid out and successfully planted, it is absolutely necessary that the executor have a definite plan. Should he attempt to go forward without one, he soon finds that the group of trees planted three years ago are exactly where he wants a summer house now; and that beautiful evergreen screen which is growing up does not hide any thing but the best view from the bay widow. Have a plan. Have it on paper. Let the paper be strong and the lines be in good ink. When you make this plan, let it be the result of several days' hard study. Consult your wife, and get the opinion of the best gardeners and horticulturists of your acquaintance.

And, having the plan, follow it. Let every minimum of labor given to the grounds be applied to the execution of this plan. You will be delighted to find how effective your efforts are. You should make your plan at once, if you do not have one, no matter whether you have just bought your land or have been twenty years in the dark.

In making such a plan there are a number of broad principles which ought to be followed. It is such a common sight to see every one of these disregarded that we take this opportunity of calling your attention to a few of them.

First, then, do not plant so as to hide the house. There is not a reader who does not know of pretty houses which nobody has ever been able to see on account of the shade trees so thickly set about them. Do not plant trees close to the house at all. And, in planting at a greater distance, do not set the trees in long, closely-crowded belts which absolutely hide the house in that direction. Wind breaks are desirable, but they are not incompatible with a more tasty arrangement.

This leads, naturally, to the matter of vistas or openings in the plantings. The plan should provide for these. Toward the road or in any other direction where a good view may be obtained an opening should be left that the view may be unobstructed. These vistas are useful in making your place look larger, roomier, and cooler. You will want some trees within a few hundred feet of the house, but you ought not to have the whole grounds circumscribed at that radius. There will need to be lines along which you can see to the furthest extent of your property or at the prettiest points in the territory beyond. These give depth, perspective tone to your grounds.

To attain any other desirable effects, the trees should be planted singly or in groups. Only in exceptional cases will a row of trees be at all allowable about the dwelling. The trees grouped together should be chiefly of one variety. A mixture of anything is to be avoided in every case. A pretty picture is a combination of colors; but care is taken to show each one separately. Were they all mixed together, a single somber gray tint would make up the whole.

It makes as much difference what you plant as where you plant it. Your plan then will have marked to each group of trees or shrubs the name of the variety to be planted. Study carefully to discover what sorts will thrive and look best in certain places, and having once determined, record your decision on your map.

Think of these suggestions these cold days when outdoor work is not easy. You may make such a plan as will save many a day's labor when the season does open.

HOW TO FIND THE POINTS OF THE COMPASS.

The way of finding where I am when lost in the field or upon the water on a cloudy day is to place the point of a knife-blade upon the middle of my thumb nail—the blade in a line perpendicular to the plane of the nail. A shadow will then be seen upon the nail pointing at the knife-point, and one can readily determine where the sun is. If the hour hand of a watch is then pointed at the sun, half of the distance between the hour hand and 12 o'clock is due south at any time between 6 a. m. and 6 p. m. Between the hours of 6 p. m. and 6 a. m. half of the distance between the hour hand and 12 o'clock is due north. In the woods one can be deceived by the nail shadow if he stands among trees and light comes through an opening in the forest. It is necessary to stand in an opening clear of trees, and then it must be a very dark day indeed when the nail shadow is not sufficiently well defined to give the direction of the sun. I never bother to carry a compass.—*Cor. Forest and Stream.*

The *Maine Farmer* remarks: "A false notion is prevalent, especially among the younger men, that a large farm is necessary in order to be a successful farmer. Many of the most distinguished and successful farmers in the United States are owners of farms containing less than one-tenth the number of acres owned by others who are making a failure of the business. This would indicate that the success or failure is attributable to something else besides the size of the farm."

Says the *Mirror and Farmer*: "An observing man, riding through the west and seeing field after field of corn stalks going to waste, remarked: 'The farmer is conducting the only business in the world that allows a man to lose 45 per cent of his capital stock and at the same time live.'"

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th.
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 5th.
June 5th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Mrs. Hood has returned from Indiana.

Professors Rain and Mason are at their posts after a week's sickness.

Professors Lantz and Popenoe attend a Farmers' Institute at Frankfort this week.

The regular meeting of the Board of Regents will be held on Tuesday, January 26th.

A count yesterday shows 487 students in attendance, with new ones being added to the roll daily.

Howard L. Lawrence, Business Manager of the Alhambra Mandolin Concert Company of Topeka, visited the College yesterday.

The Printing Department is printing the plates for Prof. Walters' new text-book on freehand drawing, fuller mention of which, with perhaps illustrations, will be made later.

E. M. Fairchild is spending a term in the Oberlin Theological Seminary, expecting after a few months to return to Andover. He has lost no time from his studies by the accident of last October.

Professors Georgeson and Mayo attended the meeting of the State Board of Agriculture at Topeka, this week, and both read papers. Prof. Mayo also presented a paper before the State Veterinarians.

President Fairchild, after his ten days' illness, was greeted by the students in chapel on Wednesday morning by a hearty round of applause. The President's sickness, the attending physician says, was due to overwork.

Prof. Rain entertained the Chapel audience yesterday afternoon by an interesting lecture on Robert Burns, in which the life of the poet was traced from boyhood to the time of his death, and his many beautiful traits of character presented.

Jno. E. Hessin's name appears on the programme of the annual meeting of the Kansas Bar Association, which assembles in Topeka on the 25th. He will discuss the subject of "Fraud on Creditors through Confidential Relationship."—*Manhattan Republic*.

Mrs. Leonard G. Thompson, of Glenwood Springs, Colo., has visited for two weeks past with the family of her brother, Supt. Thompson. She left yesterday for Chicago. On returning to the west in the spring, Mrs. Thompson will join her husband at their new home in Boise City, Idaho.

Mr. W. B. Lloyd, agricultural editor of the *Farm, Field, and Stockman*, of Chicago, spent the forenoon at the College, and finding the time all too short for such a visit as he would like to make, promised himself a longer visit next summer. Mr. Lloyd attended the meeting of the State Board of Agriculture, this week, in the interest of his paper.

Chas. Gundaker's 36th birthday was pleasantly celebrated on Monday evening, at his home on Colorado Street. Odd Fellow friends and ladies from the Rebekah lodge to the number of about thirty surprised him by their presence, and, after a social chat, presented him with an elegant rocking chair as a testimonial of their regard.—*Manhattan Republic*.

Prof. Brown, who was called to Leavenworth Saturday last by the illness of his brother, writes that he died on Monday. Death was the result of a cold caught while at the State Teachers' Association. Rev. Robert Brown was a native of Scotland, but nearly his whole life was spent in America. He was a graduate of Oberlin College, and was in the employ of the Sanitary Commission during the war. For some time he was

Chaplain of the Kansas Penitentiary. Although a preacher by profession, and serving a church in Leavenworth for many years, he was at the time of his death President of the Kansas Conservatory of Music, at Leavenworth.

Assignments to Farmers' Institutes have been made as follows: Bluff City, Harper County, February 11th and 12th, Professors Walters, Graham, and Georgeson; Topeka, February 18th and 19th, President Fairchild; Osborne, February 25th and 26th, Professors Olin, Georgeson, and Kedzie. Applications for Institutes have been received from Greenleaf and Mankato.

At the recent meeting in Clay Center of the State Dairymen's Association, the question of a dairy school in connection with the Agricultural College was discussed at some length. It was decided to push this movement as fast as possible, it being recognized by all present that education along the lines of dairying is at the foundation of all permanent advancement in this enterprise.—*Manhattan Republic*.

The weather for the week ending with to-day has been the coldest for many years, and is unusual for Kansas; while the stealthy manner in which the cold wave enveloped us added to the surprise with which we greeted a temperature of twenty-three degrees below zero Tuesday morning. The thermometer readings for the week follow: Tuesday morning at 7 A. M., -23; Wednesday, -18; Thursday, -12; Friday, -4; Saturday, -2.

Mr. S. C. Mason says that in traveling all over the southeastern part of the State recently, stopping here and there at hotels and restaurants, he went without eating any apples for nearly two weeks because he did not see a single specimen of another variety than the Ben Davis. Dealers seem to have no commerce in anything else. This does not indicate that this great, red, pumpkin-flavored apple is losing in popularity.—*Topeka Capital*.

Commenting on the recent collecting trip to Southern Kansas by our Mr. Mason, the "tree man" of the *Kansas Weekly Capital* says: "Prof. Mason is an experienced collector. Besides that, he knows more about Kansas trees and their distribution than any other man in the United States. The most valuable contributions that have ever been made to this part of horticultural knowledge are contained in the papers which Mr. Mason has already published on this subject. He purposes to publish other and more extensive notes in the near future."

The first Faculty dinner of the term was served Monday by the Cooking Class, and was followed on Wednesday and Friday by the regular lunches. An alumnus who partook of the Friday lunch was overheard to observe that it was a decided improvement over the lunches of former years in that the sandwiches were three cornered instead of square, thereby enabling one to encompass them with greater ease and dispatch. If the Cooking Class encourages "gulping" in this fashion, it will soon be called upon to formulate a few rules under "Aids to Digestion."

GRADUATES AND STUDENTS.

A. K. Midgley, '91, was a visitor yesterday.

J. C. Donahue, student in 1889-90, visited the College yesterday.

Flora Weist, '91, attended the chapel lecture yesterday afternoon.

Pearl Dow, '91, has charge of the music classes during Prof. Brown's absence.

R. Snyder, '90, is teaching the Woodstock school, near McLouth, Jefferson county.

Matie Toothaker, Second-year in 1888-9, is teaching in the schools of Westport, a suburb of Kansas City.

E. W. Curtis, Third-year in 1890-91, is taking a course in scientific dairying in the University of Wisconsin, at Madison.

J. E. Payne, '87, writes from his new home near West Point, Miss., that he is farming "on shares" for a wealthy planter. His chief crop is potatoes. Speaking of "razor backs," the writer says: "Cows and hogs found on the ordinary plantation here are hard-looking brutes. I wish I could send you the pictures of some of them. The negroes never get anything but side-meat, and seemingly do not know that hogs have hams and

shoulders." Mr. Payne visited the Mississippi Agricultural and Mechanical College, and says that it is doing good work.

Mr. and Mrs. J. B. Anderson mourn the loss of their only child, which died at Clay Center on Monday, of diphtheria. Mr. Anderson was a student in 1882-3.

Prof. Walter Olin and wife, of Osborne, are happy over the advent of a daughter in their home. And Harry Stone and wife, of Ft. Worth, Texas, rejoice for the same cause.—*Nationalist*.

J. W. Van Deventer, '86, writes from Denver of a pleasant reunion of student friends at the home of E. H. Snyder, '88, and Dora Vanzile-Snyder, Third-year in 1887-88, in Highlands, a suburb of Denver. The following graduates and former students were present: J. W. Van Deventer, '86; D. W. Working, '88; F. A. Campbell, '90; A. A. Sebring, R. B. Forsythe, and C. F. Goss, former students. Messrs. Campbell and Sebring were accompanied by their wives. An evening rich in reminiscences, merry and sad, was passed. College days were lived over again, and keenest pleasure was realized by all who were present, and parting time came all too soon.

THE WEATHER FOR 1891.

BY PROF. E. R. NICHOLS.

It will be seen by examining the following table that 1891 was a model year. The number of rains, including snows, was two more than normal, the extremes being 80 in 1858, and 30 in 1860. The rainfall, including melted snow, was 30.56 inches, being .65 inch above normal. The greatest annual amount was 45.86 inches in 1876, and the least, 12.32 inches in 1860.

The mean annual temperature was 51.91°, which was .64° below normal; the warmest being 57.66° in 1860; the coldest, 48.97° in 1869. The maximum temperature was 102°, being 1° above the average; the extremes were 115° in 1860, and 87° in 1878. The minimum temperature was -4°, which is 8 above the average. The coldest was -26° in 1888, and the warmest, -3° in 1870.

In making the means in the table, only the years with complete records were used if the missing months would change the result.

Year.	Number of rains.	Rain in inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	80	38.98	53.22	100	-16			
1859	58	36.21	53.52	104	-8			
1860	30	12.32	57.66	115	-6			
1861	51	35.27	54.17	99	-9			
1862	54	26.20	50.08	103	-6			
1863	66	40.53	54.26	96	-13			
1864	63	20.29	52.49	104	-13			
1865	60	31.65	56.55	98	-8			
1866	44	19.85	60.45	96	-12			
1867	57	26.50	49.79	98	-16			
1868	63	30.69	50.98	93	-1			
1869	74	27.86	48.97	102	-7			
1870	65	22.10	53.91	101	-5			
1871	59	28.84	53.91	98	-10			
1872	56	35.78	51.22	98	-14			
1873	59	25.28	51.52	98	-14	28.76	29.50	27.95
1874	49	18.51	53.22	100	-17	28.75	29.45	28.10
1875	61	18.16	50.18	95	-6	28.79	29.50	28.13
1876	49	45.86	51.63	95	-10	28.70	29.55	28.19
1877	67	41.09	54.14	100	-7	28.72	29.33	27.98
1878	74	39.12	54.43	99	-14	28.70	29.42	27.97
1879	54	43.13	56.13	97	-16	28.62	29.21	27.88
1880	57	29.39	53.50	105	-18	28.63	29.19	27.80
1881	61	29.00	53.98	105	-7	28.75	29.23	28.04
1882	55	28.43	54.32	102	-17	28.63	29.40	27.99
1883	77	26.79	50.80	98	-22	28.63	29.30	27.72
1884	64	31.72	51.37	99	-18	28.67	29.33	28.00
1885	59	24.49	51.19	110	-19	28.88	29.66	28.02
1886	60	30.10	52.78	110	-23	28.96	29.88	27.90
1887	64	29.91	52.83	107	-26	29.13	29.86	28.44
1888	54	31.39	51.28	101	-10	29.06	29.80	28.11
1889	49	30.97	52.20	107	-19	28.92	29.55	27.93
1890	66	23.02	52.86	107	-4	28.90	29.51	28.16
1891	61	30.56	51.91	102	-4			
Means	59	29.91	52.55	101	-12	28.73	29.48	28.01

* October, November, and December missing.
+ January, February, March, and April missing.
January missing.

WIND RECORD.

Months.	1889.			1890.			1891.			Means.
	Mean hourly velocity.	Maximum hourly velocity.	Prevailing direction of wind.	Mean hourly velocity.	Maximum hourly velocity.	Prevailing direction of wind.	Mean hourly velocity.	Maximum hourly velocity.	Prevailing direction of wind.	
Jan.	7.2	28	NW	8.0	28	NW	9.2	56	NW	8.6
Feb.	9.2	31		8.7	28	NW	11.4	32	NW	9.1
Mar.	10.4	37		11.0	46	E	13.1	37	E	11.1
Apr.	12.9	44		13.3	51	E	10.8	32	E	11.5
May	7.8	28		8.2	44	SW	10.3	36	SW	10.5
June	8.3	27		13.4	27	SW	9.7	27	E	10.3
July	7.8	27		10.8	26	E	7.5	29	E	8.8
Aug.	7.8	27		8.2	29	SE	7.7	28	SE	7.9
Sept.	7.5	26	SW	8.2	32	E	10.8	31	SW	8.8
Oct.	6.5	26	E	9.4	34	N	9.3	30	SW	8.4
Nov.	7.6	26	N	8.3	26	SW	10.7	36	SW	8.9
Dec.	10.8	47	SW	8.6	32	SW	13.5	48	SW	11.0
Means	8.7			9.7			10.3			9.6

COLLEGE ORGANIZATIONS

January 9th. The Webster Society was called to order at 7:30 o'clock by Pres. Tucker. Nearly seventy members answered to roll call. After invocation and reading of minutes, E. H. Freeman was initiated. Owing to election of officers and other business, the order of debate was passed. The Society listened to declamations from E. A. Donovan and L. W. Hayes, after which Mr. G. V. McKeever told us in an essay, "How to make Home Pleasant." An interesting number of the Reporter was presented by B. H. Pugh. The committee on music being disabled, the Society resolved itself into a choir and sang "America" as lined by the President. J. Frost, as newsmen, told us of the happenings of the past week.

The following officers were elected for the ensuing term: F. C. Sears, President; E. W. Reed, Vice-President; R. C. Harner, Recording Secretary; E. M. S. Curtis, Corresponding Secretary; F. W. Ames, Treasurer; L. S. Harner, Critic; T. W. Morse, Marshal. The Society used excellent judgment in the selection of its officers, which is a good indication of a pleasant and profitable term. G. K. T.

January 8th. At the usual hour to day Society Hall was well filled with Alpha Betas and visitors. Vice-President Gardner called the Society to order, and Messrs. Abell, Clothier, Abell, and Fryhofer opened the programme with a song "Rocking on the Billows of the Deep." Fred Hulise led in devotion. Roll call showed a very good attendance. Mr. Limbocker was elected and initiated, after which Mr. Thoburn delivered an excellent oration on "The Love of Glory." Kate Oldham then read the Gleaner with the motto, "Leap Year." After recess the Society listened to a trio by Messrs. Abell, Clothier, and Abell. We then passed to the order of election of officers, and the following officers for the ensuing term were chosen: President, May Seeger; Vice President, J. B. Thoburn; Recording Secretary, C. H. Thompson; Corresponding Secretary, Ivy Harner; Treasurer, Fred Hulise; Critic, Grace Clark; Marshal, Stella Kimball; News-men, Jessie Stearns and Hugo Halstead; Director, to fill vacancy, W. O. Lyon. After the transaction of miscellaneous business, assignment of duties, report of Critic, and reading of minutes, we were highly entertained by Mr. Fryhofer with a vocal solo, after which the Society adjourned. O. H.

January 9th. The Hamiltons were called to order by President Rice. Seventy-four members answered to the roll call, twelve being absent, making a total of eighty-six on the roll, which is two less than at the close of last term. The Society was led in devotion by G. L. Plasket. The minutes of the previous meeting were adopted as read. By suspension of the rules, C. E. Yeoman was prosecuted for unexcused absences, and found not guilty. Messrs. Holland, B. M. Brown, W. L. Graves, and O. L. Mitchell were initiated, and a dozen more names were proposed. When these persons are initiated the membership will be swelled to 102, which prompts the thought that we must either petition for the chapel, or a gallery in our society hall, to provide for the present comfort and future growth of the Hamiltons. The most hotly contested election that the Society has ever experienced, took place. G. W. Wilden was elected President by a majority of seven; J. H. Persinger, Vice-President, by a majority of ten; L. Olmstead, Recording Secretary, by acclamation; C. K. Hutchings, Corresponding Secretary, by acclamation; W. O. Staver, Treasurer, by a majority of twelve; A. D. Rice, Critic, by a majority of eight; R. B. Abbott, Marshal, by acclamation. The remainder of the evening was spent on Society business. W. J. Y.

THE GRIP AND ITS PARTNER.

New York has the grip in epidemic form. It is killing people at a faster rate than during any former visitation of the kind. And the death rate recorded as due to it does not cover the whole of its destructive work. It seems to induce and to aggravate other maladies, and when the disease itself disappears the system is so weakened as to be open to special dangers that do not ordinarily threaten well men and women.

But the worst of it is the grip has a partner. The notion has gone abroad that the disease succumbs to antipyrine, and large numbers of persons are freely buying and using that drug as a remedy for this malady. It is the testimony of physicians who speak with authority that antipyrine is just now killing more people than the grip is.

This drug powerfully effects the action of the heart, depressing it. Wherever there is fever it tends to reduce it, and so, when taken during the feverish stage of the grip, it seems to the patient to have a good effect. But the grip itself disturbs the heart's action, and when antipyrine is added not only harm but death may be the consequence.

The intelligent physician who prescribes this drug is supposed to do so after satisfying himself that his patient can bear it and that his condition renders it desirable. The patient who takes it on his own responsibility, knowing nothing of the condition of his heart, takes it at no little risk.

It is always a bad thing to take medicine blindly, without a prescription from a physician competent to make a diagnosis. Present experience is proving that it is a very dangerous thing to take antipyrine in that ignorant fashion.—*New York World*.

GRIP EVERYWHERE.

If there were any part of the country to which people could fly from the grip, any region in any State of the Union protected against the insidious, grievous and dangerous malady, there would be a bigger rush to that region than there ever has been to Oklahoma. But the grip is everywhere and at all points of the compass, from the Atlantic to the Pacific. Moreover, people cannot insure themselves against its attacks by going to the warm climate of the West Indies, for it is there, or to the cold climate of Canada, for it is there too, or to any of the countries of Europe, for it is in all of them. Under the circumstances, the thing for people to do is to stay at home and take good care of themselves.—*New York Sun*.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

The *Western School Journal* prints outline pictures of the President and the Ex-president of the State Teachers' Association. Both pictures are fairly good, though that of Supt. Pence is better than that of Prof. Sanders.

The flag, awarded by the State Teachers' Association for the largest attendance at the annual meeting, went to Russell county this year. Supt. Bickerdyke somehow managed to bring to Topeka 75 out of the 89 teachers of his county. Supt. Yearont of Greenwood county came next with 120 out of 127 teachers. Last year the flag was in the custody of Lyon county.

The Sixteenth Annual Meeting of the Kansas State Historical Society will be held in the Hall of the House of Representatives, at Topeka, on Tuesday evening, January 19, 1892, for the election of one-third of the members of the Board of Directors, and the transaction of such other business as may come before the meeting. Addresses will be delivered by Hon. James S. Emery, President of the Society, and by Dr. Peter McVicar, President of Washburn College. A meeting of the Board of Directors will be held at three o'clock P. M. of the same day, in the rooms of the Society. All members of the Board are requested to be present.

Prof. Miller, of the State University, has written a new text-book on trigonometry. It will be published by Leach, Shewing, & Sandhorn, of Boston, and is expected to appear during the present month. The book will differ from other books on this subject by the effort to give clear demonstrations for all formulas, the absence of all answers to the practical problems, and especially by a chapter on trigonometrical tables, showing clearly how the natural geometrical functions may be developed from the doctrine of limits and how the tables of logarithmic trigonometrical functions are obtained. The usual chapters on surveying and navigation are omitted. The price of the book is \$1.35.

In the exhibition of the Topeka Schools at the State Teachers Association there were many things that created quite an interest among the teachers of smaller cities. In the display of fourth grade work there were "raised maps" made of putty moulded on glass. The mountains and valleys were prominently brought out. In the display of the seventh grade work physiology was especially prominent. There were pen pictures of the heart, lungs, and various organs; and large pictures of the human body, showing the bones, muscles, arteries, and veins. In the high school exhibit, there was a large variety of electrical and scientific apparatus, made entirely by the pupils. There was also a good display of work in Latin, German, and advanced English branches and mathematics.

The Kansas school teachers assembled in Topeka to the number of about 1,500 and had an active, enjoyable, and profitable session. Reunions were held of various schools and colleges and of teachers from the different States. James L. Hughes, the famed Canadian lecturer, introductory to his lecture before the Association, said, "This is certainly the largest and most enthusiastic State convention of teachers it has ever my privilege to attend. This is indeed credible to Kansas." The report of the Columbian Exposition board was approved by the convention. Their plans look to a complete exhibit of the work of the Kansas schools in the national building, together with a duplicate of the same, so far as it can be had, in the Kansas building. The committee deemed it best to organize itself as a board of directors for the Kansas educational exhibit. The members of the Board are as follows: Superintendent J. M. Bloss, of Topeka, chairman; President A. R. Taylor, of the State Normal, secretary; Chancellor Snow, President G. T. Fairchild, President Quayle and Superintendents Winans, Stanley, Roop, Kloch, Boyd, Peairs, Leach, Dickinson, Stevenson. An exhibit was made of the work of the schools of Topeka, for the inspection of the assembled teachers of the state. It was opened at the Harrison school building. Special features, such as drawing from life, composition work, and map drawing, were prominent. There were also specimens of the work of every one of the 5,000 pupils in the city schools, from the "first B" to the post graduate class of the high school. A table was filled with the work of the schools outside

of the city, chiefly Shawnee county district schools, and a few specimens received from over the State. The officers for the ensuing year are: President, J. E. Klock, of Leavenworth; Vice President, W. G. Riste, Phillipsburg; Secretary, Ida M. Hodgdon, Lyons; Treasurer, J. E. Monroe, Fort Scott; executive committee, V. H. Biddison, Marshall county; S. M. Nees, Montgomery county; H. E. Bruce, McPherson county.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

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J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, jewelry, and Gold Specacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

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W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

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D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE.—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

REBATE TICKETS given on all cash sales. For tickets amounting to \$5.00 you will be presented with one of three books, "Success," a record of the lives of noted men; "The Home Guide," or "Compendium of Cookery." Reliable Boots, Shoes, and Rubbers. Latest styles and low prices. LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. SAICHSON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Notions, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

O. HUNTRESS, Dry Goods, Groceries, Queensware. Free delivery. Prices always as low as good business methods will warrant. The trade of Professors, Students, and all connected with the College especially solicited.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 23, 1892.

NUMBER 21.

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

THE AGRICULTURAL COLLEGE AND UNIVERSITY EXTENSION.

BY PROF. D. E. LANTZ.

IF University Extension is a good thing, and it undoubtedly is, why cannot our State Normal School and State Agricultural College do a part of the work? Each of the institutions named has at least half a dozen well qualified and equipped specialists. Moreover, Kansas is large, and it seems to us there is abundance of elbow-room for all.—*Western School Journal*.

The Kansas State Agricultural College has been engaged in practical university extension for the past ten years or more. While the present great movement for the extension of university teaching has, as yet, been felt only in a few favored centers of population, the Agricultural College has extended its work into our farming communities, and brought its influence very close to the people. I believe that it is the great ultimate aim claimed for university extension, that it will benefit the people of all classes and bring the university to them. The College has sent the members of its Faculty into many of the smaller towns and villages of the State to deliver lectures, and give practical instruction in all the lines of work represented in our various departments. It has sought to arouse an interest in the work done by our specialists, and especially in the applications of the sciences to the operations of the farmer and the mechanic. It has encouraged the communities reached by these lectures to engage in home study and home experiments, and to present the results of their own investigations and experiences in papers read at our meetings. It has organized the farmers of various counties into mutual improvement societies, which hold meetings from time to time for the reading of papers and the discussion of topics of practical importance to such communities.

In all this the aim of the College has been identical with that claimed for the new movement. The work has been distinctly educational in character, and has been very successful. The demand for it has always been far greater than the College could supply. With our large attendance and limited teaching force, the absence of members of the Faculty from their regular classes is always attended with something of loss to our students. The amount of this work for the good of communities outside our own must, then, of necessity be some what limited.

Under the present circumstances, it is doubtful whether the Agricultural College can do much to help organize and conduct "extension" classes in our larger cities. It has its distinctive work to do, and its Farmers' Institutes fill a part of that field. It will continue to do as it has for many years past, all that it can in the lines of this practical university extension. It has all the "elbow-room" it needs, and would be glad, also, for outside assistance in the same line of work.

SOY BEANS FOR DISTRIBUTION.

BY PROF. C. C. GEORGESON.

TWO years ago I obtained from Japan about a handful of each of several varieties of soy beans. I had seen them grow there, and appreciating their valuable qualities, I desired to test them here. The small stock of seed beans which arrived in the spring of 1890 was planted here on the College Farm in May of that year, and, in spite of the dry season which followed, they grew satisfactorily and matured seed. In the spring of 1891 we planted all we had raised the year before, with the result that a goodly crop was harvested last fall. The several varieties yielded all the way from twelve (12) bushels to nearly nineteen (19) bush-

els per acre, on low ground, which, much of the time, was too wet for timely cultivation.

Now, in view of the highly nutritious qualities of this bean, and the success that has attended our efforts in growing it, it seems probable that it will be a valuable crop for this country; and to bring it to the notice of our farmers it has been decided to distribute last year's crop to farmers in Kansas who desire to try these beans and who are willing to pay the express charges. Applicants will receive one (1) pint each of two or three varieties as long as they hold out. They will be put up in a little cotton bag and forwarded by express.

In regard to their culture, it may be stated that they are all stocky bush beans. They should be planted, when all danger of frost is over, in rows, three feet apart, and the beans dropped about two inches apart in the row, and covered with a couple of inches of soil. Give them shallow culture during the summer (but never disturb them while the foliage is wet); and when the beans begin to ripen, pull or cut the plants and cure them in small piles until dry, when they should be housed at once. If they remain out of doors too long after they are pulled, the pods will crack open and the beans go to waste.

My idea in introducing them as a farm crop was that they would be useful for stock feed. While this is true, it should also be noted that they are excellent table beans; many of those who have tried them pronounce them superior to our common navy beans for table use. To bring out their flavor to best advantage, the water in which they are boiled should be changed two or three times during the first hour they are cooking.

It may further be added that the botanical name of the soy bean is *Glycine hispida*, a species which is not known to the agriculture of this country. The Japanese have upwards of sixty varieties of them, varying much as to size, color, earliness, etc. The kinds which are here offered are selected from their earliest varieties, as the late ones could not mature in this latitude.

We have also a small stock of two varieties of a little red bean which belongs to a species (*Phaseolus radiatus*) that I believe is entirely unknown in this country. They are also of Japanese origin, and should be treated like the soy beans. They are more especially for table use, and should be cooked like navy beans. They have the reputation of being the best flavored beans in existence. Small packages of these will also be sent out while the stock lasts. Applications may be made to the writer.

THE FOLLY OF ANGER.

BY ELIZABETH EDWARDS, '92.

HOW often in life we speak many words for which we are afterwards sorry, while a second thought generally would have prevented their utterance. The controlling of this passion is one of our first lessons to learn. Some one has defined anger as a "short-lived madness," and we often hear of many persons who are greatly affected in such a state of mind. Our senses were given to us to act to the best possible advantage. "Whatever thy hand findeth to do, do it with all thy might." But we cannot do much without reasoning.

The root of anger has been called "greatness of mind." Has the world ever known of angry persons to become great in an honest way? If people could only be taught to consider the consequences or look ahead, and always be prepared to resist all that is provoking, how glorious it would be! It is very often we find the causes of our anger to be mere trifles: it may be some remark on our actions or appearance. It makes

some people angry to have their age mentioned. In such cases, anger shows a lack of common sense. In all cases when the mind is unoccupied by something substantial, a person is more or less of an uneasy disposition, always ready to listen to private conversation, and what people say of him. He is very easily provoked to anger, and surely can never be happy.

How unlike a human being is a person who cannot govern himself! Such passion is degrading, to say the least. Whatever be the occasion, scolding is never in order. If the outward appearance is so hideous, what of the mind and the soul itself?

Anger never helps us in anything; if it did, it would be no longer anger, but reason. If we look back on the world's history, we observe what great trouble the tyranny of anger has caused, even from the remotest time. How many incidents we know of where anger was discharged upon the innocent instead of the guilty! Why should an angry person have such power over others when his mind is lost?

Before anybody should attempt to govern others, surely he must first be able to control himself. To do this for ourselves, we must always, above all, have patience and consideration. Then we can overlook the little annoyances in life and be more ready to make our enemies our most faithful friends. Such a life brings power as well as happiness.

SHORT AGRICULTURAL COURSES.

BY F. A. WAUGH, '01.

EVIDENCES are abundant that the state agricultural colleges are making a special effort to accommodate themselves to the needs of farmers, and to impress upon them that their work is designed especially for the benefit of agriculture. A special evidence of this is found in the institutions of the last few years making special short courses for such farmers as are willing and anxious to pursue a line of agricultural studies for a few months, or a year or two, and still do not care to take a three or four years' course. These short courses are generally so arranged as to get a great deal of practical work within a short time, and at a minimum of expense. Any young farmer who feels that he can spare the time and can raise a little money for that purpose, will certainly be the better for giving these efforts of the schools special attention. Without recommending one school above another in this particular, we would urge our young friends that this matter be kept in mind.—*National Stockman*.

There is to this, as to many another proposition, a good and a bad side. There are those, especially young and even middle-aged men, who would be glad of an agricultural education, but who are of necessity engaged for the greater part of the year in the hard work on their own farms, and who are absolutely without the money to support them through an extended college course. Yet they could and gladly would attend a short course of lectures during the winter if they might thereby get a taste of the sciences upon which their art depends. There are many old farmers who would jump at a chance of this kind. Short agricultural courses meet this want.

But short agricultural courses do not, in any broad sense, furnish an agricultural education. The real good of a college education, as will be testified by every man and woman who has enjoyed one, is not in the multitude of facts which the memory has stored up, but in the training which has come in a continued and judicious and systematic exercise of the mind. This the short course can never give, be it organized as it may. Its work is in another field. It can give facts; but the four years' course gives facts and the strength of a cultured mind, and a trained intellect and a discriminating reason.

This fact is not generally recognized; and herein lies the danger. If people were given their choice between short courses and full courses, it is to be feared that many would content themselves with the former, while the latter was quite within their reach. Every young man and young woman who can by any possibility gain it, should have a thorough training of the mind; i. e., should receive a good education. And the fact that he or she is to have an agricultural education is no reason why it should be any less thorough. This is why we shall always view with a provisional commendation any effort at pushing the short courses in agriculture. There is great danger of their becoming too popular.—*Kansas Weekly Capital*.

WHAT UNIVERSITY EXTENSION IS.

At the recent meeting of the American Society for the Extension of University Teaching, the president, Prof. E. J. James, of the University of Pennsylvania, thus defined a movement which is making headway every week:—

University extension is an attempt to make self-culture, or education, a serious business of life. It appeals, therefore, to all classes alike—laborer, employer, rich or poor, man or woman. We have all heard again and again that the education of man ought not to cease with the school, and yet we all know how true it is that systematic study, for the sake of self-training and culture which it gives, is very likely to cease with the school-room and the school course. It is a logical consequence of the general democratic movement in modern times in every department of national life.

University extension is a most efficient means of interesting individuals and communities and nations in higher education, thus securing the intellectual progress of the people. It is certainly one of the prominent needs of our modern civilization to provide for the existence and maintenance of our higher institutions of learning, those nurseries and transmitters of culture, those promoters of the best ends in civilization. In modern times that cannot be done except as a result of a general interest on the part of the people, as a whole, in the subject of higher education itself; and certainly it will be enormously easier to get that heartier support if every individual, man or woman, in the community can be brought to feel that these higher institutions have something for them, and, if, through any circumstances of ignorance or economic inability or carelessness of friends or guardians, they have been deprived of the opportunities in their early life, that, at least, these institutions as a whole or the community by their aid, bring home to them continuously and continually the chance of making good the lost opportunities of their youth.

University extension does not pretend, in the ordinary course of its educational work, to produce scholars, and with this statement we have met one of the most common objections to this movement on the part of college and university men. It does not pretend by courses of twelve lectures in chemistry, or twelve lectures in physiology, or twelve lectures in economics, to produce chemists or physiologists or economists. It does accomplish more in the direction of scholarship than is ordinarily attributed to it. Many of the individuals who are reached by its work accomplish much more in a scholarly direction than the average teacher or college professor, who is never in real contact with the possibilities of the adult mind, would suppose to be possible.

ROAD ASSOCIATIONS IN MISSOURI.

Mr. J. L. Ervine of Callaway is going around through the state working up associations for the improvement of roads. The object is to have good roads all over Missouri with several great turnpikes traversing the state perhaps. When Saline county is piked, living in the country will be like living in town, and the boys will stay at home on the farm and make money there too. Turnpikes are what has made Kentucky one of the finest places to live in the world and her people the most sociable. And one great object of living in this world is to live, did you ever think of that?—*Marshall Progress*.

A special train composed of twenty six empty cars came over the Santa Fe one day last week and were switched off at the Lyons rock salt mine. The regular freight has been unable to draw enough cars for the mines besides doing the remainder of regular work.—*Lyons Republican*.

NEW YEAR RESOLUTIONS.

THE FARMER'S.

Not to mortgage one piece of land to buy another. To pay the mortgage he already owes and stop the interest on it.

To breed better stock.

To shelter his cattle from wind and storm.

To stop small leaks in the management of the farm.

To make home life and farm life pleasant for his children.

To leave undone nothing that will make his wife's work easier or her life happier.

To keep account of all expenses and incomes.

THE FARMER'S WIFE'S.

To persuade her husband into buying the girls a piano.

To convince him that the way to prove to their sons that farming is profitable is to give them a piece of ground and help them make it pay.

To make such good country butter that the creamery will have a hard rival. To have arrangements made for a fine kitchen garden next year.

THE FARMER'S SON'S.

To learn everything he possibly can on improved methods of farming.

To try new methods on a small scale, in order not to risk great losses.

To see the advantages of farm life.

To prove that sound morals and good education may be acquired in the country as well as in town.

To keep his temper in spite of irritating chores to be done.

To grudge no pains or labor that will help him to a better, nobler, truer manhood.

THE FARMER'S DAUGHTER'S.

To ignore no household duty, remembering motives count rather than acts, in many cases.

To read at least one good book each month.

To make a daily effort to come nearer her ideal of perfect womanliness, and to remember it is found in a beautiful soul—not only in a beautiful face or in costly attire.

To have a flower garden next summer.

To make home beautiful and attractive to her parents and her brothers and sisters.—*Unidentified Exchange*.

MEASURES OF SAFETY.

With almost every practical advance in science, with every new mechanical appliance intended to lessen human toil, increase the comfort and augment the happiness of the human family, come unwanted dangers to life and property. These new risks are none the less to be deplored because the aggregate of casualties may be lessened as a result of the adoption of the new appliances. If an improvement, the chief value of which is the saving of many lives is found defective and liable to cause death, in rare instances, the defects should be corrected as promptly as though it were entitled to no credit as life-saving appliance. The wheels of progress cannot be arrested because lives are sacrificed, and yet human life is so sacred that it should be carefully guarded at every possible point. A government that neglects to care for its individual members is but slightly removed from barbarism, and philanthropy can find no higher employment than in devising means for the safety of life and health. Taking electricity as a familiar and striking example of scientific progress, with its attendant dangers, the chief object of electricians should be to lessen the risks in the use of that wonderful and beneficent agent. It is destined to play too important a part in lightning, heating, and motive power not to remain permanently in use, but its death-dealing qualities must be reduced to a minimum.—*Pittsburg Commercial*.

So long as we have the "scrub" farmer just so long will our stock-yards be adorned with the scrub stock of all descriptions which he invariably throws on the market at a loss to himself and probably to the consumer.—*Breeders' Gazette*.

Many housewives become very spunky if their butter is commented upon and pronounced moderate; then instead of inquiring into what is wrong, and righting it, still continue in the old way, assuming that people don't know what good butter is.—*Ohio Farmer*.

The people of Kansas should be proud of the *Agora*, the "Kansas Magazine," at Salina. No. 3 of volume one is as handsome a book as any periodical of its kind that comes to the State. Every lover of good things should be a reader of the *Agora*.—*Newton Republican*.

CALENDAR.

1891-92.

Fall Term—September 10th to December 18th

Winter Term—January 5th to March 25th.

Spring Term—March 28th to June 8th.

June 8th, Commencement.

1892-93.

Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at *par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Board meeting, Tuesday, January 26th.

Mrs. Georgeson has been quite ill for several days.

Mrs. Fairchild has been sick for a week, but is convalescent.

Secretary Graham lectures this evening before the teachers of Abilene.

The annual exhibition of the Hamilton Society will be held on Saturday evening next.

Mr. C. M. Miquette, of Osborne, visited his old-time friend, Assistant Mason, on Tuesday.

The pond in the City Park has furnished good skating almost continuously for two weeks past.

The Library has received a large box of Nebraska State Publications from the State Librarian at Lincoln.

The Horticultural Department has completed the manuscript for two bulletins—one on grapes, the other on strawberries.

Prof. Brown is detained in Leavenworth on account of illness, but expects to be with his classes on Monday next.

Mrs. Charles, of Republic, visited her two sons in College yesterday. She had a son and a daughter here in 1884-5.

On Tuesday morning at seven o'clock the thermometer indicated a temperature of -26° —the coldest weather for many years.

The Faculty Committee on Exhibit for the Columbian Exposition are busy with plans for the proper presentation of the work of both College and Station.

The Board of Regents of the Oklahoma Agricultural College are expected today, to make inspection of our institution in the hope of gaining information to guide them in equipping their school.

Prof. Walters writes entertainingly on "Industrial Education," in the current number of the *Agora*, the new Kansas magazine published at Salina. Several pictures of our College departments illustrate the article.

Comfortable rooms should be provided for the meetings of Farmers' Institutes. A cold, cheerless, barn-like structure and a stuffy, ill-ventilated room are alike uncomfortable, and are calculated to put a damper on anybody's enthusiasm. For the sake of the ladies, at least, let the local committee see to it that proper quarters are provided.

Prof. E. Davenport, late Professor of Agriculture in the Michigan Agricultural College, remembered here for an extended visit in 1889, writes of the successful beginning of work upon a similar institution in Brazil, whither he was called by a company of wealthy citizens who have endowed the Escola Agronomica de Piracicaba.

The seventh division of the Third-year class appeared in Chapel yesterday afternoon with the following programme: J. Stingley, "The Farmer and the City;" Phoebe Turner, "Highest Aristocracy;" J. E. Taylor, "Machinery and Progress;" J. E. Thackrey, "China and its Future;" Jessie Whitney, "The Grandeur of Nations;" C. H. Thompson, "Retribution for Russia;" S. I. Wilkin, "The Hill of Science;" G. K. Thompson, "Against Centralization."

The Farmers' Institute at Frankfort was well attended, considering the severe weather of last week. A general interest in the papers and the discussions was manifested. The ladies were well represented in the programme and in the audience. Eleven papers were presented, each followed by a brief but pointed discussion. Mrs.

Sproul, of Frankfort, read a paper on "Farmers' Wives," the discussion of which was carried on mainly by the ladies present. Mrs. Wanamaker, of Waterville, read an excellent paper on "Boys and Girls on the Farm." This, and also the paper by C. F. Travelute on "Education on the Farm," gave emphasis to the importance of the work at our Agricultural College. The discussion on "Country Roads" showed a general sentiment in favor of maintaining the roads by contract to the lowest bidder. "Fruit Growing, and the Prevention of Fungus Diseases of Fruits," had a good share of attention. A display of some fifteen varieties of apples, all well preserved and good specimens, was made in spite of the cold weather. The several sessions were enlivened by excellent music. Professors Popenoe and Lantz, the representatives of the College, were pleased with the work of the Institute.

GRADUATES AND STUDENTS.

Hattie Noyes, '91, visited friends at the College on Thursday.

G. E. Hopper, '85, has resigned as Superintendent of the Manhattan Waterworks, and is succeeded by C. E. Pfuetze, '90.

A. E. Wilson, '78, until recently in the banking business at McPherson, has been appointed a National Bank Examiner. Southwest Kansas will be his field of work.

A private letter received from H. E. Robb, '88, bears the postmark, Eureka, and the letter-head gives unmistakable evidence of having come from the County Surveyor's office.

F. A. Waugh, '91, made his usual visit to College friends in the city, and the College, the first of the week. Mr. Waugh is one of those graduates who appreciate their alma mater.

John Davis, '90, and K. C. Davis, '91, enjoy the distinction of being two of eight students selected to appear before the Faculty of the State Normal in the exercises preliminary to the State Oratorical Contest.

Robert A. Clark, Third-year in the fall term of the present year, and Miss Minnie Dow, of Manhattan, were married on Thursday evening at the residence of the bride's parents, Rev. D. C. Milner officiating. Mr. and Mrs. Clark left yesterday for their new home in Sitka, Alaska.

H. W. Stone, Fourth-year in 1888-9, writes from Fort Worth, Texas, where he has been General Secretary of the Young men's Christian Association for two years past, that he has accepted a like situation with the Atchison (Kan.) Association, and that he hopes to complete his course.

W. A. Corey, '84, writes from Salt Lake City as follows: "I send you a copy of the *Inter-Mountain Educator*, with which I am now connected as one of the editors. Will you put the *Educator* on the INDUSTRIALIST list? I took charge of the editorial work January 1st. This, with my school work, keeps me very busy. The *Educator* takes very kindly with the people generally, and we have great hopes of its future."

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term-time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE ORGANIZATIONS

Student Editors.—B. H. Pugh, F. C. Sears, May Secret.

Webster Society.—President, F. C. Sears; Vice President, E. W. Reed; Recording Secretary, R. C. Harner; Corresponding Secretary, E. M. S. Curtis; Treasurer, F. W. Ames; Critic, L. S. Harner; Marshal, T. W. Morse.

Alpha Beta Society.—President, May Secret; Vice President, J. B. Thoburn; Recording Secretary, C. H. Thompson; Corresponding Secretary, Ivy Harner; Treasurer, Fred Hulise; Critic, Grace Clark; Marshal, Stella Kimball.

Hamilton Society.—President, G. W. Wildin; Vice President, J. A. Persinger; Recording Secretary, L. Olmstead; Corresponding Secretary, C. E. Hutchings; Treasurer, W. O. Staver; Critic, A. D. Rice; Marshal, R. B. Abbott.

Ionian Society.—President, Ora Wells; Vice President, Mary Lyman; Recording Secretary, Harriet Dodson; Corresponding Secretary, Elsie Crump; Treasurer, ———; Critic, Effie Gilstrap; Marshal, Fannie Cress; Directors, Ora Wells, Maude Knickerbocker, Phoebe Turner.

January 16th.

President Rice called the Hamiltons to order. Roll call. W. S. Pope led in devotion. Reading and adoption of minutes. Mr. Pope was called to the chair and the officers of the Society installed. President Wildin responded to the call for an inaugural, and briefly stated his principles of administration. Ex-president Rice, in response to the call for a valedictory, thanked the members of the Society for the courtesy they had shown him during the term just passed, and gave us a few hints as to future work and conduct. Mr. Rhoades' declamation on "Kissing," although without illustrations, proved interesting. "Rats" was the title Mr. Benson chose for an essay, and the animal, as well as the slang phrase, were thoroughly discussed. The debate on the question, "Should all citizens of the United States be compelled to use the English language?" was argued affirmatively by C. E. Yeoman and Mr. Shull; negatively by W. S. Pope and W. I. Joss. Space will not permit an outline of the argument presented, but suffice it to say considerable research had been made by both sides and the debate was not below our standard. The Society decided in favor of the affirmative. After ten minutes recess Mr. Olmstead presented the news of the week. Under the heads of unfinished and new business the Society spent the remainder of the evening. Adjournment. C. R. H.

January 15th.

The usual time of meeting found the Hall well filled with Ionians and visitors. President Gilstrap called the Society to order. After singing and devotion the roll was called, showing absentees. Edith Stafford was then elected a member of the Society and initiated, after which the new officers were installed. President Wells took the chair after a few well chosen words as an inaugural. Ex-President Gilstrap delivered the usual valedictory, which was full of good wishes for the future prosperity of our Society. The first on the programme was a declamation by Maude Knickerbocker. An interesting edition of the Oracle was presented by Alice Vail. It had for a motto, "Keep a stiff upper lip." Marie Haulenbeck entertained the Society with a song, "Pardon Came Too Late." Following this was the debate. The judges appointed were Messrs. Sears, Pugh, and Wickman. The question, "Resolved, That large cities are beneficial to a country," was argued on the affirmative by Eusebia Mudge and Belle Frisbie; on the negative by Hortensia Harman and Alta Lee. The affirmative argued that the fine schools and large public libraries and churches that are free to all, and found only in large cities are a great benefit to a country. The noted lecturers and musicians can be heard only in large cities; and the daily newspapers published in large cities, that could not be published elsewhere, are beneficial. If it were not for the large cities here, the immense number of people congregating during the world's fair, could not be entertained. There would be no commerce with other countries save through the medium of large cities. The negative argued that the accumulation of capital in large cities makes two distinct classes of society, the rich and the poor. Such a division of the people is not beneficial to any country. The fierce criminal class of foreigners congregate in cities, and these are no help to build up society. Large cities are, as a rule, unhealthy places. General society. Large cities originate in these cities and from there are carried over the whole country, causing great suffering and loss of life. The judges decided unanimously in favor of the affirmative. Marie Haulenbeck presented the news of the week, after which, Lorena Helder entertained the Society with a vocal solo, "Pretty Pond Lillies." This closed the programme, and after roll call with quotations the Society adjourned. E. C.

January 15th.

The Alpha Beta society was called to order by Vice-President Gardner. Music, instrumental duet, by Messrs. Abell. Prayer by Mr. Thackery. Officers for the term were installed. Jessie Whitney delivered a declamation, "The Streets of By and By," in a very creditable manner. F. H. Morgan read an essay describing the process of the construction of a railroad. The first thing is to select a locality, usually one through a fertile country where there will be likely to be work for the road. Two surveys are made, then the companies request the counties through which the road is to pass to vote bonds, which they usually do. The right of way is then bought, and the contract let to responsible men. The question, "Resolved, That the examinations at this College are detrimental," was opened by W. Harling. He argued that since the examination at this school is to see whether the subject is mastered, the test given is not a fair one. The time given affords no time for thought. The questions cover only a small part of the subject, and often not the most important. The difference in grading the papers often changes the supposed result. Many schools of reputation have done away with examination. Miss Stearns opened the negative, arguing that examinations act as a stimulus, and are in this way a benefit. In our course of study we go from one thing to another, one depending upon the other. It is therefore necessary that some test of scholarship be given. Sarah Cottrell, on the affirmative, thought it absurd to try to show your knowledge of a subject in the time given here, and suggested that frequent written recitations would form a much better test. Mr. Harlin thought it was often necessary to take examinations outside of college work. All railroad officials take examinations. Mr. Harling, in closing the affirmative, thought the examinations unfair, as they do not take into consideration the difference in those examined; and the tendency is toward mechanical work. Miss Stearns, in closing the debate, said our course here is but a preparatory course for life's work. We will find examinations all through life. We all work for grades, and our fellow beings carry the grade books. The judges, Kate Oldham, R. L. Wallis, and W. O. Lyon, decided in favor of the negative. Elva Palmer presented the Gleaner; motto, "What can't be cured must be endured." Among the articles were "Vacation," "Society Elections," "Statistics," "A Student Correspondent." Recess. Music, quartette—Elma and Inez Palmer, Sarah and Martha Cottrell. Newsman's report. Extemporaneous speaking. Miscellaneous business. Report of Critic. Music, congregational singing. Adjournment. I. F. H.

January 16th.

President Tucker called the Websters to order at the usual hour. Invocation, B. H. Pugh. Under inauguration of officers, the members elected to fill the offices for the ensuing term took the oath of office, and immediately reported to duty. In his valedictory, Mr. Tucker spoke, among other things, of the work of the prosperous term passed, and of the advance made in learning parliamentary rules. Mr. Sears, in his inaugural, thanked the Society for the honor given him, and said that though he may not fill the chair as ably as his successors, he will "rattle" around in it, and live up to the oath of office he had taken. H. G. Gilkerson, E. G. Gibson, and H. L. Coleman were elected members of the Society. The debate on the question, "Resolved, That convict labor should not enter into competition with free labor," was argued on the affirmative by M. F. Hulett and W. W. Robison; on the negative by M. W. McCrea and Scott R. Moore. The affirmative, in presenting their side of the question, thought that convict labor should not enter into competition with free labor as it subjects the laborer to unfair competitions. Our labor needs protection, and if we are not protected, the price of good wages would decline, and it would throw the free laborer out of employment. In England,

where convict labor is employed on public works, on account of the labor being unskilled, the work is done much more expensive, and much poorer than if free and skilled labor had been hired. In mining regions, where convict labor is let out to mine owners by the lease system, as it is in Alabama, Georgia, and Tennessee, it throws the other miners out of employment; and thus in mining regions it is the cause of all the strikes. The negative thought, that as convict labor helped build up the industries of the country; and as it was an inferior labor, and did not need protection, it ought to enter into competition with free labor. When criminals go to the penitentiary they are given a trade to learn if they have none, and when their term expires they have a trade to fall back on. Something has to be given them to do. Criminals that have nothing to do are thinking of some plan to escape, but if they have something to occupy their mind and are given work to do, they are easily handled. Prisons often become self-supporting where the criminals are allowed to work. It is an advantage to the state, community, and the criminals themselves to learn a trade and learn to work. The Society decided that the negative had answered the arguments of the affirmative. Fred Dow read an interesting essay on "Boys' Hardships." W. P. Tucker, for his select reading, read a romantic poem entitled, "Kit Carson's Ride." E. C. Trembley discussed the different "Exercises for Students." G. C. Wheeler, in his discussion of "New Types of Vessels," told us of late naval inventions. One was of an improved grain carrying vessel, and the other was of a fast sailing yacht. The yacht was built on the principle of the boat running over, instead of cutting through, the water. A. D. Holmes presented the news of the week. Under unfinished business, the reports of the outgoing officers were listened to. Adjournment, 10:30. E. M. S. C.

AGRICULTURAL NOTES.

By extensive farming is meant skimming over many starved acres, with a minimum profit, no profit at all, or perhaps a maximum loss.

A correspondent of an exchange says that in saving seed corn there are five points to look at—length of ear, depth of grain, smallness of cob, well filled ends, and a good place to keep it.

As a rule, farmers neglect to supply themselves with a sufficient amount of good reading. There is a common and natural feeling, too, that they cannot afford it. Undoubtedly many cannot afford, it but they economize in this direction first, and are forgetful of economy in certain other directions.—G. M. Pettit.

There is no particular reason why you should not get out some day now and haul the brush and limbs out of the orchard and the front yard. It is a melancholy fact that dozens of yards need it. It can be more conveniently attended to now than at any other time and should not be longer neglected.—Kansas Weekly Capital.

We see it stated that a farmer in Shamokin, Pa., while driving to mill the other day had his wagon stuck so fast in the mud that he has been unable to budge it ever since. He appealed to the court to test the question, Can a farmer receive damages for getting stuck in the mud? The court awarded him \$38.—New Hampshire Mirror and Farmer.

Waldo F. Brown, in a letter to the New York Tribune on the spraying of fruit trees, tells of a case where, in 100 apples from an unsprayed tree, there were four first-class apples, fifty-eight second-class and thirty-eight culls. In 100 apples from the sprayed tree there were eighty-four perfect apples, nine second-class, and seven culls. The ratio of eighty-four to four in favor of spraying doesn't leave the shiftless grower perfect specimens enough to set a defence upon.

KANSAS THRIFT.

Eight thousand fruit trees of several different varieties have been set out recently on the Garver farm, twelve miles northeast of Hazleton. The Garvers have for some years been the leading growers and shippers of watermelons in Kansas, and they undoubtedly know what they are doing when they embark in fruit growing.—The Hazleton Express.

S. J. Carter informs us that himself and boys have put in three hundred acres to fall wheat, and the late rains have brought it all up, and it is looking very promising. Mr. Carter is a good example of a farmer who prefers to put in wheat late, rather than sit down and growl about the hard times. Sticking to the plow handle beats fiat money every time.—Burlington Nonpareil.

Speaking about farming, said a well informed county official to the Index, reminds me of a Kearny county granger who had 160 acres of land with 50 acres in wheat. He was anxious to sell for \$400, but he couldn't find a purchaser. He harvested his wheat and sold the crop for \$600. It is a good thing to belong to the "can't get away club," and the aforesaid farmer thinks he will continue to sow more wheat in Kearny county.—Lakin Index.

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

Friday, January 29th—Kansas Day.

The Atchison Champion says: "The surest way to spoil a young man is to admire every thing he says, and to make him think that he is a philosopher."

The Burlington Nonpareil rejoices as follows: "Our city schools are doing good work. There is a total absence of friction and complaints. The teachers and Principal work together, in a manner that is truly commendable, and the coming men and women respond with alacrity, and pursue their studies with an interest that is refreshing and business-like these hard times."

If the school children of Minneapolis are not patriotic it is not for want of the old flag and anniversaries. The flags are brought out on twenty-five or thirty "national days," beginning with Emancipation Proclamation day, January 1, and ending with December 22, observed as "Forefathers day." The school boy or girl of Minneapolis is covered all over with red, white and blue.

The next annual meeting of the National Educational Association will be held at Saratoga. The Association met there twice before, and undoubtedly it would have been hard to find a better place, all things considered. Prof. J. N. Wilkinson, of the State Normal School, has been appointed manager for Kansas. He is familiar with the work to be done, and will undoubtedly work up a large delegation from this State.

The death of Joseph Savage, of Lawrence, has diminished the thinned ranks of the Kansas pioneers and taken a member from the company of the sincere and good. Mr. Savage went to Lawrence in 1854 and opened a farm in the neighborhood, on which he lived till his last day. He planted among the first apple trees in Douglas county and saw them bud and blossom and bear for more than thirty years. He lived with Nature and found a friend, solace, and companion in his Mother Earth. He was a geological student, knew much of the "testimony of the rocks," and was one of the first to make a scientific survey of the Yellowstone Park.

In the exhibition of the Topeka schools at the State Teacher's Association there were many things that created quite an interest among the teachers of smaller cities. In the display of the fourth grade work there were "raised maps." The mountains and valleys were prominently brought out. In the display of seventh grade work physiology was especially prominent. There were pen pictures of the heart, lungs, and various organs; and large picture, of the human body, showing the bones, muscles, arteries, and veins. In the high-school exhibit there was a large variety of electrical and scientific apparatus, made entirely by the pupils. There was also a good display of work in Latin, German, and advanced English branches and mathematics.

News comes from Wichita of an old time rough-and-tumble fight between the teacher, Henry McCain, of Peterson district, and his big boy pupils. McCain recently laid down rules governing his scholars during play hours, among which was one instructing them not to leave the school grounds. A dozen or more of the pupils are young men of 17 to 20, and these objected to such restraint. John Fawbush, one of the big boys, was ordered up to the teacher's desk to receive a whipping, for disobeying this order, and when he refused to submit a pistol was pointed at his head. The boy quickly walked up to the teacher and took his gun from him, and then knocked McCain down and hit him with his own birch. The directors were called together. J. T. Worthington, the chairman, announced that the teacher had authority to shoot a scholar, and declared that had he been in McCain's place he would have killed Fawbush. The boy was then dismissed, and as the people of the section have taken sides in the fight there, is yet expected to be trouble. That the papers of cultured Boston are exerting themselves to scare their readers with this news from the "wild west," ought to be expected.

It is none too early to prepare for the spring campaign. Does your plow need a new handle, your hay-rake a new tooth? May be you need a plank or scantling drag, or some gates? "In time of peace prepare for war."

Get rid of the fences! These words should be placed at the head of every page of the agricultural papers, until public opinion is completely stirred to action. Unnecessary fences are a most odious tax on farmers. They represent a condition of semi-barbarism, in which each man is obliged to fortify himself against his neighbors.—New York Tribune.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in E. Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 228 Poyntz Ave.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

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W. C. JOHNSTON, Druggist, A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

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A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

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D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. EWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

REBATE TICKETS given on all cash sales. For tickets amounting to \$5.00 you will be presented with one of three books, "Success," a record of the lives of noted men; "The Home Guide," or "Compendium of Cookery." Reliable Boots, Shoes, and Rubbers. Latest styles and low prices. LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SCHULTZ BROS. offer Fresh and Salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

BAKERY.

STUDENTS should buy their Bread and Pastry from J. F. Satchison. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrop's Barber Shop, South Second Street.

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O. HUNTRESS, Dry Goods, Groceries, Queensware. Free delivery. Prices always as low as good business methods will warrant. The trade of Professors, Students, and all connected with the College especially solicited.

E. B. PURCELL, Corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 30, 1892.

NUMBER 22.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION

[Entered at the Postoffice at Manhattan, Kansas, as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

A COSMOPOLITAN SCHOOL.

BY PROF. J. D. WALTERS.

SOME days ago the writer received a catalogue for the school year 1891-2 of the Federal Polytechnic Institute at Zurich, Switzerland, and the modest little pamphlet proved to be such a valuable document with regard to the much discussed subject of technical education that he invites the readers of the INDUSTRIALIST to partake of some of the interesting statistical facts.

The institution was founded in 1850 by an act of the Federal Congress, and located at Zurich upon the munificent offer of the city to furnish the necessary grounds and erect the needed buildings to the value \$400,000. Since then a number of additional buildings were erected for which purpose Congress made liberal appropriations from time to time. The most complete of these is the chemical laboratory, commenced in 1883, and finished in 1886 at a cost of over \$350,000. It is generally pronounced the largest and most perfect institute for teaching pure and applied chemistry as yet erected in any country.

The Polytechnicum, as the institution is called by the Swiss, is divided into eight schools with different courses of instruction. There is a school of architecture (44), one of civil engineering (170), one of mechanical engineering (210), one of technology (158), one of forestry (20), one of agriculture (35), one of pure science (36), and one of national economy (3). The enclosed figures give the number of regular students in attendance in each school. The attendance during the fall term was 676 regular and 408 special students (Zuhorer), a total of 1084. Of the special students, 159 were regular students of the University of Zurich. The faculty was composed of 74 Professors, 33 assistants, and 5 curators. The courses of instruction covers three years, but requires the most severe preparation. The candidates for admission must pass satisfactory examination in at least two languages, mathematics including analytical geometry and spherical trigonometry, organic chemistry, physics, and mechanics.

Considering the fact that Switzerland has five State universities, two polytechnic schools, over a dozen agricultural schools, a score of industrial or trade schools, twenty-five teachers' seminaries, and more than that many gymnasia, some of these latter with several departments, these figures are significant in many respects, but the most remarkable statement which the catalogue makes is exhibited by the table of nationalities of the regular students. Such a mixtum compositum cannot be found in all America, from Yale to Stanford, cosmopolitan as our country is. The 328 natives of Switzerland belong to four different nationalities and speak four different native languages. Of the 348 foreigners, 90 come from Russia, 54 from Austria-Hungaria, 44 from Germany, 40 from Roumania, 38 from Italy, 4 from the United States and 12 from South and Central America, 14 from Greece, 11 from France, 10 from Bulgaria, 7 from England, 5 from Denmark, 5 from Sweden and 1 from Norway, 5 from Turkey, 3 from Holland, 2 from Portugal, 1 from Spain, 1 from Syria, and 1 from Persia. The faculty are considered Swiss citizens as long as they teach and live in Switzerland, and the catalogue does not state their nationality. The names, however, betray a similar variety of native countries and tongues. Of the 24 newly appointed professors and assistants whose nationality and names are given, 1 is a Frenchman, 1 a German, 1 a Hollander, 2 are Russian Poles, 1 a Roumanian, and 1 an Austrian.

These statistics are so odd that they naturally give rise to a number of questions, many of which are hard to answer at this distance. What forces have been at work in gathering together at this obscure Alpine city such a diversified army of disciples of science? One reason consists in the fact that the Swiss are a peaceful people. Their laws are liberal, their habits simple, and their religious views tolerant.

WESTERN IDEAS FOR WESTERN SCHOOLS.

BY JOSEPH B. THOBURN, '93.

THE West is noted for its material progress and its wonderful advancement in almost every avenue of human industry. But, while this reputation has been growing, the East has been allowed to assume the role of intellectual superiority and social leadership. It is true that there are people who, while claiming to be intelligent, believe that the hub of the intellectual universe is located in Massachusetts, that west of the Alleghanies, the state of society is semi-civilized, and that on this side of the Mississippi the inhabitants are but little in advance of the primitive savages; yet there is no reason why deference should be shown to such opinions. The average western man may be ignorant of philosophy and not learned in ethics, yet he has a mind of his own and enough American common sense to realize that a positive lack of information is preferable to an over supply of egotism. Others again, with a spirit of servility that is truly distressing, and with a lack of independence that is not in keeping with western ideas, seem ever ready to kiss the dust where tread the feet of those who, haughtily assuming a superior position, treat them with contempt. They seemingly forget that the strongest tree grows not in the shade of another—that individual strength is the outgrowth of individual freedom in action.

Nowhere is the presence of such a spirit so much to be deplored as in the western institutions of learning, yet that is where it seems most prevalent. Many western students look very wise as they discuss "university spirit" and "college patriotism," when in reality such talk shows not only a lack of patriotism and college loyalty, but discloses the presence of an abject sycophancy and an unbecoming desire to imitate something foreign to himself and his alma mater that is the very opposite in effect. The student in a western school who wears a peculiar cut of clothing because that is the style at Harvard, who carries a cane because that is proper at Columbia, or who must belong to a fraternity because everybody does at Yale, is only exhibiting his own weakness. An ape can imitate a man, but it cannot become a man or receive respect because of its actions. He who would be respected should be a man, and not a mimic.

What has been said of the individual will apply equally as well to the corporate institution. When college authorities encourage the growth of college patriotism (so-called), class spirit, fraternities, and a taste for the misnamed "athletics," they are not working in harmony with the philanthropic spirit which prompted the founding of such an institution. When a college professor goes fifty miles to attend an inter-collegiate football contest, wears a red cap, and gives vent to his feelings by giving the "college yell," he is not only prostituting the dignity of his office, but he is also doing a positive injury to a cause which he should foster and protect. If a school was founded for the purpose of affording intellectual training and culture to its students, that should be its prime object, and not, as is sometimes the

case, a waste of time, money, and energy in the endeavor to possess the foot-ball pennant or the oarsman's prize cup. True democracy cannot flourish where independence and individuality do not exist, and western schools will find that apiary eastern institutions in all that does not tend towards real advancement in all that is good and useful is only drawing them farther from the object for which they were established. Eastern sentiment will never entertain respect for western thought and institutions until they have within themselves the elements of individuality, the greatest of which is independence.

THE PATTON ELECTRIC CAR.

BY PROF. E. R. NICHOLS.

THIS new car was tested at Pullman, last summer, and has been in successful operation since. The apparatus consists of the following mechanical and electrical combinations: A gas engine, dynamo, motor, and storage batteries. This apparatus, with the exception of the storage batteries, is placed in the centre of the car, occupying a space about five feet long and the width of the car wide. The tank containing the gasoline is placed just under the roof of the car, feeding direct to the engine by gravity. The storage batteries are placed under the seats. The apparatus no doubt appears unnecessarily complicated until its working is understood.

The engine is coupled direct to the dynamo by friction pulleys, and the motor direct to the axle of the car, no belts or gearing being used. As there is a loss of about ten per centum in both the dynamo and motor, or only about eighty per centum of the power of the engine is fully realized in propelling the car, the question naturally arises, Why not couple the engine direct to the car axle, and do away with dynamo, motor, and storage batteries? In this latter case, however, in running on a level, going down grade, carrying a light load, or stopping, there would be a considerable waste of power, besides requiring the constant attention of an engineer. With the Patton car, the surplus current is sent through the storage batteries, and when an extra amount of power is required, the batteries are turned on to help out the dynamo. Thus an engine equal to the average power required can be used, instead of one equal to the maximum as would be required without the batteries.

Another important use of the storage batteries is in starting the engine. In most cases a gas engine is started by hand power.

The working of the different parts is entirely automatic. The engine once started requires no further attention till its day's work is done.

The cost of running the car for three weeks was only seven cents per hour, or about one-third the cost of horse power.

The motor car has a seating capacity of thirty-five, and draws a double-decked trailer with a seating capacity of eighty.

EFFORT WINS.

BY L. S. HARNER, '92.

MANY men and many women fold their arms and look out into space, when they ought to be at work. But to none of these who lived in the days gone by are we indebted for anything that has led to the upbuilding of character or added to the happiness of the human race. In order to make ourselves useful, we must develop both body and mind; and to do this we must work. Experience and history teach us that it is the storms encountered and successfully overcome and the mountains scaled, that develop us grandly.

The developing of a body, mind, or character that will enable one to laugh at obstacles and triumph over tribulations and difficulties, depends almost wholly upon the efforts put forth by the individual. A man lying in his boat while it

drifts leisurely with the current is not developing his muscles; but when he grasps the oars and runs against the tide, his muscles harden and grow. No doubt many of us sometimes think how nice it would be if, without much effort on our own part, we could make life forever smooth, forever bright and blooming. A pleasant thought; but the wish has never been realized, and probably never will be. No one can accomplish much without labor.

We need not only power to think abstractly, to speculate, to moralize, but also power to act intelligently; and the power to act intelligently involves the exertion, in greater or less degree, of all the powers, both mental and physical. By study, man has become able to do things not taught by nature or instinct. He now possesses power or skill in the use of knowledge and some of the practical applications of the rules of science. This has been gained by practice, by constant effort such as everybody needs to make as he goes through life.

THE IDEAL FARMER.

He is here in the world, somewhere. If any of you have found him, let me know where he has been hidden all this time.

The ideal farmer will be a manly man, who is patient (it takes patience to make a farmer), gentle and kind to all farm animals, especially to the one that is the mainstay of the farm, the farmer's wife. She will be a good wife to an appreciative husband, for he will take better care of his wife than he does of his cows, and she will be his companion, friend, and equal partner, and the ideal farmer will be the ideal husband.

The ideal farmer will think and read, and magazine and papers will be eagerly welcomed guests at his library table. He will avoid as far as possible the bringing of his hired help into the home, and when he does they will be men whom he can feel will not have a bad influence on his children. No tramp or stranger will the ideal farmer hire simply because such happen along when he thinks he needs them; but he will see that his hired help have good names and recommendations.

The Ideal Farmer will also see that his wife has help as well as himself. The work for a large is too much for one pair of hands in the kitchen, especially when there are children in the home. There will be modern conveniences in the house as well as around the farm. There will be, if possible, a horse and buggy for the ideal farmer's wife and children. The pocketbook will be "ours," not "mine," and the wife will not have to depend on the making of butter for clothes for herself and the little ones.

The ideal farmer will be a cleanly man, one who is not afraid of taking cold if he should take a bath. A farmer needs a bath pretty often, if he keeps sweet and neat, and there is no use of anyone looking and smelling as some of them do. He will have a good business suit to wear to town and not go with overalls and shirt sleeves dirty, and boots which look as if part of the farm had come to town also.

The ideal farmer will spend his Sundays as a Christian should. A farmer's life is very near to Nature's heart. Let him also get near to Nature's God, and the farm life will brighten, and the home life better and sweeter, because of the presence of a gentlemanly Christian, if but a farmer.—*K. W. Curtis, Michigan.*

Kansas farmers are giving more attention to door-yard gardening than ever before. No longer do the golden-rod and sun-flower grow luxuriantly at the very door. The pinching poverty the early settlers experienced is a thing of the past; the farmer now has time and means to think of the beautiful, and plan for the ornamental as well as the useful. He makes out a plan of his premises, and goes to work intelligently to carry it out. All unused boards, iron, agricultural tools, with the thousand things that accumulate about a farm yard, are stored away where they cannot be seen from house or road. The sheds and cribs are hidden by a clump of trees. Gates and fences are mended. The lawn is sown to blue grass and ornamented by walks and shrubs. During the long Winter evenings, additional plans can be made for a more marked improvement in this line.—*Orange Fudd Farmer.*

WHY THE FARMERS ARE OPPRESSED.

Some time back I spent a day in my town and watched the market closely, and found there was a good demand for most home produce. But I also observed the farmers standing around with nothing to sell, many of them buying that which they should have raised on their farms, others hunting work to do because times were so hard and oppressive. Much of this was due to severe dry weather, but the greater part is from neglect, want of energy and enterprise.

On the farm is where most all the wants of the farmer is supplied, and but little from any other source, and if he suffers from oppression it is mostly his own fault and but little from any other cause. If these farmers had put all their minds to using the same energy and business enterprise that the merchant does, they would have seen that all the various industries of their farms, both great and small, were well represented, and would have a little of everything to sell, which would have paid better than standing around idle, or more than the labor of those who were hunting employment would have brought them.

I know for every farmer to have an abundance of all these things to sell would bring a glut in the market but until the supply is greater than the demand, and prices below the cost of production, we should not complain of oppression.

But for most of the smaller industries we can by proper and skillful management increase the market, if we cannot for bread and meat. The human appetite can be increased by usage or cultivation from "none to three quarts of strawberries per diem," and so with everything else by keeping on the market strawberries, raspberries, and blackberries of attractive and of an appetizing appearance, and the market may be increased from a few gallons to hundreds. When I first began raising fruits and vegetables for market I have failed to sell a single gallon of strawberries when I would go to market but now I can sell twenty-five to fifty a day. I have failed to sell a melon, but now I can sell twenty-five dollars' worth daily. My father in his life time said no man was as far from market as the man who had nothing to sell.

GET A HOME AND KEEP IT.

A large portion of American people are restless, roving, scattering, driven about from place to place by every Spring freshet of popular excitement. Their desire for quick gains, and their perpetual motion, wear them out prematurely. They build houses for life-time residences, and are ready to sell out their newly-built homesteads a week after they are finished (for perhaps less than cost); and off they go, perpetually swinging around the circle of chronic change. To the pleasure of home and neighboring attachment, to repose of feeling and content of mind and love of objects around them, they are strangers. The fruition of the trees they plant they rarely witness. Of all their positions, they have nothing home-like to gladden their heart. The gardens they lay out, the furniture they buy, and the houses they build, afford no home-loving memories.

After wearing out half a life-time in perpetual change of habitation, with little gain and great loss, they see their past career nothing but failure.

Habits wayward, the mind perplexed, the purpose cowed, their energies baffled and disappointed, they surrender to fate, and accept in moody despair their abject situation; and often, with conscience seared and morals wrecked, without home or friends, they settle down too late, and die among strangers. A good home, and the queen of the homesteads a good wife, are essential to the happiness of every man; and nothing will so surely attach children to parents and home virtues, as a lifelong homestead, the memories of which grow in delight with every increasing year.—*Selected.*

BALL BEARINGS FOR RAILROAD TRAINS.

Henry B. Williams, of Rochester, N. Y., has secured the approval of the Pullman Palace Car Company of his invention for the application of ball bearings on railway car journals, which will greatly lessen friction and increase the speed of trains. Experiments have been made with one of the company's gondola cars to which the new bearing journals were attached, with satisfactory results. In the Pullman yards, this car, which weighed 21,000 pounds, was heavily loaded, and when fitted with ball bearing journals one man pushed it along the track with ease. It is claimed that this invention will create a revolution in speed, even of the fast train.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

The Hamilton Annual tonight.

Two beautiful blooming orchids attract visitors to the Green-house.

Hon. Josephus Harner, of Leonardville, visited his two sons in College yesterday.

Prof. Georgeson was confined to his room for a day this week by a return of the grip.

The Websters will hold no session this evening on account of the Hamilton's annual.

News comes from far-way Australia that a daughter arrived at the home of Professor and Mrs. E. M. Shelton on the 16th, December.

Prof. Brown is in his place again, having returned from Leavenworth on Tuesday. He is accompanied by his son Harry, who will remain here for the present.

Prof. Willard's horse took fright at a bicycle yesterday afternoon, and, running away, wrecked the phaeton. The Professor was thrown out, but escaped serious injury.

There is a possibility of a fifth literary society being organized shortly to accommodate the overflow from the present organizations, all of which are too large for good work.

State Secretary Wilbur, of the Kansas Gospel Union, visited the College last week. He organized a County Committee of the Union while here, of which Assistant Marlatt is President.

The newly-organized Class in Floriculture, in charge of Professor Popenoe, consists of ten young ladies, each of whom is assigned space in the propagating pits for the bedding of plants and cuttings.

A private letter from Geo. F. Thompson, Superintendent of Printing in the early '80's, announces his satisfaction with his position as proof-reader in the Government Printing Office at Washington.

An incipient blaze in the work-room of the Chemical Laboratory, caused by burning charcoal left by a student, caused a little excitement yesterday morning, emphasizing the need of extreme care when "playing with fire."

Mr. A. A. Ewing, Mr. J. P. Lane, and J. A. Wimberley, Regents, together with President R. J. Baker and Director Dr. J. C. Neal, of the Oklahoma Agricultural College recently organized at Stillwater, have spent the past week in a thorough inspection of our methods and equipment.

Regents and Faculty, with a very few Faculty wives, united Tuesday evening in an attack upon roast turkey and other good things prepared by the Cooking Class. Misses Little, Reed, Short, and Conwell, post-graduate students, presided. President Caraway of the Board added not a little to the pleasure of the affair by a five-minute talk in which he said a good many pretty things about the College and College people, and modestly alone prevents their reproduction in cold type.

The 500 notch in the attendance stick has been reached and passed, the number of students in classes being 502, while the total enrollment for the year thus far is 554. It is scarcely necessary to state in this connection that this large body of students fill classrooms and workshops to their utmost capacity, and in some of the industrial departments it has been a puzzle to provide suitable work for all. The attendance in the various industrial departments is as follows: Sewing, 90; cooking, 35; carpentry, 212; blacksmithing, 26; foundry, 16; brasswork, 2; printing, 80.

GRADUATES AND STUDENTS.

W. H. Edelbute, Fourth-year, has been placed in charge of the class in athletics.

J. E. Thackrey, Third-year in 1889-90, has gone to Pine Ridge Agency to teach in the mission school.

H. W. Mattoon, Second-year, was called to Topeka the first of the week by the illness of his sister.

J. R. McNinch, Second-year in 1890-91, succeeds Louis Bixler as Secretary of the Manhattan Y. M. C. A.

A. H. Ballard, Second-year in 1885-6, sends greeting to College friends from Del Sur, Las Animas county, California, where he is "ranching it."

N. E. Lewis, '88, writes from Hamilton, O., where he is employed as a designer in a large tool manufactory, with reference to the second degree.

G. E. Hopper, '84, has gone to Beloit to superintend the construction of the addition to the Girls' Industrial School, for which he has the contract.

R. C. Simmons, in Second-year classes last term, called at the college Monday for his grades. He will enter the State Normal School for further study.

A party was tendered Howard Hunter [Third-year] at his mother's residence, Friday evening, in honor of his twenty-third birthday. A pleasant time was had by his young friends, and Howard received several handsome presents.—*Mercury*.

J. M. Howard, of Topeka, a student from 1873 to 1875, called on Wednesday. He expressed great surprise and pleasure at the changes time has wrought, and in a half day spent in grounds and buildings found next to nothing to remind him of College days.

H. W. Mattoon, a Second-year student, was found unconscious about eight o'clock last evening in Prof. Georgeson's office. He had entered the room two hours previous to do some type-writing, and the fact that he had not lighted a lamp would indicate that he had been unconscious for an hour when discovered.

BOARD MEETING.

In the Board meeting, this week, all the members were present. Most of Tuesday afternoon and Wednesday were spent in consideration of college finances and routine.

Tuesday evening was given to the joint meeting of Board and Faculty, after a supper given by the cooking class, and the condition and wants of each department were presented.

Upon recommendation of the Faculty, the fees hitherto charged in printing and analytical chemistry were abolished, leaving all departments free except instrumental music. The Faculty was authorized, upon recommendation of that body, to provide gymnasium training for the young women.

Upon recommendation of the Station Council, M. A. Carleton was appointed assistant in botany, the salary being fixed at \$600 per annum.

Estimates of necessary expenditures by the Experiment Station Council for the ensuing quarter, amounting to \$726, were authorized, and the Council was directed to publish the bulletins and annual report as in previous years.

Incidental expenses in the various departments were authorized as follows: For the library special list of books, \$55.25, cards for catalogue, \$16, catalogue case from Station fund, \$15; Drawing Department, blue print apparatus and room, \$30; Mechanical Department, clock and text books, \$20; Printing Department, dictionary and clock, \$15; Farm Department, painting barn, \$30, and authority to purchase a pony for care of stock to take the place of one which has already served twenty years; Botanical Department, scalpels, \$5; Horticultural Museum, expenses for collecting timber specimens, \$25.

The Secretary was directed to notify delinquencies on land contracts of a proposed cancellation of such contracts at stated dates, unless payment of interest in arrears shall be made prior to those dates, also to notify the Attorney General of several delinquencies of school district bonds, asking that action be taken in such cases as require it.

The Committee on Employees was asked to take under advisement a plan of relief for the Departments of Horticulture and Entomology by additional teaching force, to report at the April meeting; and the Faculty were requested to report at the

same meeting such improvements as they may find practicable in the industrial training upon the farm and gardens. The Faculty were authorized to issue as early as possible 6,000 copies of the annual catalogue, adding a cut of the interior of the iron shop.

The President of the Board was authorized to sign and perfect a bond for securing from the United States War Department six non-commissioned officer's swords; the President of the College to take such steps as may be needed for securing a proper exhibit of College work in the Columbian Exhibit of 1893.

The vouchers of the Treasurer and the papers submitted by the Loan Commissioner were carefully examined by the Committee on Finances, and reported correct in accordance with the books of the Secretary.

Regents Hessin, Fairchild, and Moore were appointed a committee to devise ways and means to meet current expenses.

The Board then adjourned to meet Tuesday, April 12th, at 3:30 P. M.

TWO COLD SNAPS.

Prof. Nichols furnishes the following comparative figures of the coldest days in January, 1888, and January, 1892:—

January.	1888.		1892.	
	Daily mean.	Minimum.	Daily mean.	Minimum.
11	21.00	10	0.00	—9
12	17.00	0	—8.50	—23
13	—7.50	—11	—1.75	—18
14	—13.25	—15	5.50	—12
15	—16.25	—26	9.00	—4
16	3.25	—17	24.50	—2
17	2.75	—8	1.50	—2
18	13.75	—6	—5.75	—10
19	6.00	—4	1.00	—26
20	—8.75	—10	16.00	0
21	—3.25	—13	26.25	0
22	8.25	—8	30.25	20
23	—	4	—	20

COLLEGE ORGANIZATIONS

Student Editors.—B. H. Pugh, F. C. Sears, May Secrest.

Webster Society.—President, F. C. Sears; Vice President, E. W. Reed; Recording Secretary, R. C. Harner; Corresponding Secretary, E. M. S. Curtis; Treasurer, F. W. Ames; Critic, L. S. Harner; Marshal, T. W. Morse.

Alpha Beta Society.—President, May Secrest; Vice President, J. B. Thoburn; Recording Secretary, C. H. Thompson; Corresponding Secretary, Ivy Harner; Treasurer, Fred Hulse; Critic, Grace Clark; Marshal, Stella Kimball.

Hamilton Society.—President, G. W. Wildin; Vice President, J. H. Persinger; Recording Secretary, L. Olmstead; Corresponding Secretary, C. R. Hutchings; Treasurer, W. O. Staver; Critic, A. D. Rice; Marshal, R. B. Abbott.

Ionian Society.—President, Ora Wells; Vice President, Mary Lyman; Recording Secretary, Harriet Dodson; Corresponding Secretary, Elsie Crump; Treasurer, ———; Critic, Effie Gilstrap; Marshal, Fannie Cress; Directors, Ora Wells, Maude Knickerbocker, Phoebe Turner.

January 22nd.

At the usual time, the Ionian Society was called to order by Pres. Wells. After singing, prayer, and roll-call, Miss Johnston was elected and initiated.

The first number on the programme was a vocal solo, "Little Fisher Maiden," rendered in German by Bertha Spohr. Mary Lyman gave a select reading entitled, "Have a Purpose in Life," followed by a declamation by Fanny Cress. The Oracle was edited by Alice Horton. The society was entertained by a violin solo by Hilda Walters, accompanied on the guitar by Ida Walters. The music was much enjoyed, as was shown by an encore. We were then favored with music on the harmonica and guitar. This was loudly applauded, and, in response to the second encore, they played that old but beautiful air, "Listen to the Mocking Bird." Florence Corbett opened the discussion on the question, "Should girls use curling irons?" This was discussed quite freely, the question being one they were all interested in. Nora Newell in a very entertaining way presented the news of the week. The programme was closed by a vocal solo, "Come Back to Erin," by Mary Lyman. After the report of committee and critic, reading of minutes, and roll call with quotations, the society adjourned.

January 23rd.

President Sears called the Webster Society to order at 7:30 o'clock. Roll-call. Invocation, S. I. Wilkin. Reading of minutes of last meeting. The debate on the question, "Resolved, that gambling causes more misery than intemperance," was argued on the affirmative by E. M. S. Curtis and C. D. Farris, who thought that gambling was one of the greatest evils of the day. Few gamblers, only the professionals, grow rich. It leaves a host of others without money, and causes them much misery. The affirmative cited the cases of the Louisiana lottery and all lotteries in general, which robbed the workmen of their wages. In higher circles of life, the Board of Trade is a great gambling institution, where men bet on margins, and make and lose fortunes in a day. Society can throw an intemperate man out of its circles, but gambling in every form takes hold of society, and is one of the main forces that threaten to destroy it. The negative, represented by S. I. Wilkin and G. W. Munger, thought that intemperance was one of the greatest evils of the time. A few gamblers become rich, while those who drink waste their money and bring destruction to themselves.

and their families. Drinking shatters the physique, and the weakness of a father brings in misery and destruction by being transmitted to his sons. The Society decided in favor of the negative. Declaration, J. W. Evans; essay, "Scotland's Progress," A. S. Houghton; essay, "Training Horses," E. L. Wetzig. J. N. Secrest, in his discussion of "Aluminum," spoke of the amount of aluminum in the earth, the method of extraction, and the different uses it is being put to. D. H. Otis appeared with a good number of the Reporter. Discussion, "Hydraulic Mining," A. F. Niemoller. Adjournment, 10:30.

E. M. S. C.

January 22nd.

The Alpha Betas were called to order at the usual time by President Secrest. A sextette, consisting of Misses Francis, Oldham, Fryhofer, Secrest, Steuart, and Clark, sang "Only a Dream of the Old Home," after which Ole Hult led in devotion. The question, "Resolve I, that the office of County Superintendent should not be elective," was opened by E. A. Gardiner. Under present conditions any man who may conclude he wants the office of County Superintendent may announce himself a candidate for the office, subject to the nomination of a certain party. Since one party will not support a man of the other party, another man is nominated, and then the results depend on the strength of the party and not on the personal merits of the candidates. Since a well qualified person is absolutely necessary for the successful management of our country schools, they should be secured by some method where the personal merits of the one given the office would be taken into consideration. If the county could appoint such a man, much better results would follow.

G. W. Fryhofer defended the present system by saying that since the Superintendent is to serve the people, he should be elected by them. Grace Clark spoke of the tendency of County Superintendents to neglect their work, and suggested that the State Board of Education would be the proper persons to select a man for such a position. Nora Fryhofer argued that since there are smart men to be found in all parties, good men might as easily be found there as elsewhere. The judges, Misses Halstead, Palmer, and Whitney, decided two to one in favor of the affirmative. Incz Palmer presented a very interesting number of the Gleaner, which was followed by an instrumental duet by E. J. Abell and P. E. Westgate. Revers. The news of the week was reported by Jessie Secrest. Informal speeches were given by Lizzie Edwards and R. A. Melivains, followed by a general discussion by the Society. I. F. H.

ILLINOIS AND ROADS.

In Illinois it is proposed to ask the Legislature to establish a board of road commissioners who will be more than mere names and who will take an active interest in their work. This board—if the people succeed in getting what they want—will have the power of making special assessments on countries and using the money to repair the roads of the country, or, if necessary, build new roads. This has been taken up by a large number of people, and it looks as if it would be pushed to a successful end. This is the direct result of the writing and talking that the bicycle riders have done on the subject. They have been preaching the gospel of good roads until they have actually got it through the heads of the farmers that \$1 in good roads saves the waste of \$3 involved in the possession of highways no better than the average country road in Illinois. The farmer has not been able to appreciate the benefit to be derived from good roads because he has not had them. If once he gets a taste of them he will never be content to waste his time dragging through mudholes.

Fish ponds are becoming the rule, instead of the exception, as was formerly the case. Hardly a well-to-do farmer but talks of putting a fish pond on his farm. One man took a large number of carp from his pond lately in draining it. Through the summer, he feeds the fish oats and corn mush. They lie dormant through the winter. One of the handsomest fish ponds I have seen is at Fairmont, Kansas, near the great Wellhouse orchard and packing house. It covers quite a tract of land, and is adorned by a small island in its center.—*Orange Judd Farmer.*

Mr. C. R. Beach, a Wisconsin farmer, says he has a farm of 79 acres which he could sell for \$100 an acre. If he were to sell it he could not get as comfortable a home in town short of \$3,000, and the interest on the balance wouldn't pay his livery bill if he rode half as much as he does now. The best income on the investment of any business he knows of comes from the farm.—*Grange Homes.*

A practical farmer once said in our hearing, about a remark some one had made at an institute; "That remark applies to the farmers who never attend the institutes; it is of no force at this meeting." His idea was that the men who attend the farmers' meetings are more intelligent than those who do not avail themselves of the means of instruction.—*Grange Homes.*

We have several times recorded instances of death of stock from swallowing binding twine with straw. The *Michigan Farmer* mentions a very fine Shorthorn calf killed by the same cause, and adds: "If the twine gets into the stomach of an animal it will cause trouble, as there is no way of getting it out."—*New York Tribune.*

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

A large lot of books has recently been added to the public library at Muscotah.

The Anderson county people are discussing the organization of a county high school.

Pittsburg came very near losing both of its school-houses by fires caused by defects in the construction of the heating furnaces.

State Superintendent Winans has issued the following circular to County Superintendents: "After consulting with County Superintendents at Topeka at the State Teachers' Association, the following dates have been chosen upon which to begin the county normal institutes this year: June 6th, July 5th, 11th, and August 1st. These four dates should accommodate all. It is hoped that no other dates will be suggested. No one ought to work in more than two institutes. Were one to attempt it, he would do injustice to the third institute, to himself, and to his school in September; and the undersigned believes that he should not approve appointments which would mean three months' institute-work for one person in a year."

Mr. Morgan, the Commissioner of Indian Affairs, says that the Indian school at Lawrence was never in such splendid condition, and he regards it as one of the very strongest of the various educational institutions now in charge of the Indian bureau. He says the work done there is of a higher standard than at any other Indian school in the country, and he hopes soon to have the institution take up normal work. He will endeavor to obtain an appropriation at this session of Congress for a chapel and gymnasium building and other needed improvements. The attendance is growing every year. The Commissioner speaks very highly of Superintendent Meserve's work: "I am aware there was much opposition to Mr. Meserve at the time of his appointment to the position of Superintendent of the Indian School at Lawrence, but the opposition was entirely political. He has demonstrated to the satisfaction of every one," said the Commissioner, "that he is the man for the place."

According to *Our Grange Homes*, the statement of Gov. Hoard of Massachusetts at the recent meeting of the State Board of Agriculture, that ignorance is the chief cause of agricultural depression, did not please all his hearers. Mr. French, a large farmer of New Hampshire, thought the great drawback is due to limited markets. We should have the markets of South America and the whole world. Gov. Hoard replied that our want of better markets is due to ignorance. He had recently received 180 letters from farmers reading his newspaper asking what the dot was placed before certain figures for. They could not read a decimal. He had also received hundreds asking what was meant by the terms protein and albuminoids. It is because of our ignorance that we in the United States are keeping two cows to do the work of one.

The farmers in Germany, Italy, and France know what good roads mean. Everywhere are fine, firm, well-drained roads. The casual visitor to those countries might well be excused for thinking them made for the purpose of beautifying the country. But he would be mistaken. They were made for the convenience of the common people. They were made to lighten the tasks of the farmer. To do this is an economical measure by which a whole country is benefited.

Small fruits are a sure annual crop, if cared for with common intelligence; they yield supplies to a beginner within two years—much sooner than any fruit-tree; they are cared for by children, and are necessary for their full and continued health; their culture, being light, and such that young folks can participate in, leads to a better knowledge of larger tillage and of the general requirements of plants.

A West Virginian saw an advertisement how to run a truck patch without being bothered with potato-bugs. He sent fifty cents and received this reply: "Scrape the moss off your back, spread it over the ground and plant bean-poles."—*Colman's Rural World.*

The *Artisan* notes the scarcity of colleges where young men are taught to appreciate the honor and dignity of labor.

One farmer buys manure annually, and has made his soil rich, as all growth on it shows; but the growth is mostly weeds from seeds brought in with the manure. Another near by spends little or nothing for manure, stops all weeds as soon as they become visible, or before, and so raises good crops, and prospers, while his neighbor retrogrades.

MANHATTAN ADVERTISEMENTS.

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SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

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R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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STUDENTS should buy their Bread and Pastry from J. F. SACHISON. Delivery every day. Orders may be left at the Bakery or given to the driver. A full line of Confectionery.

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THE INDUSTRIALIST.

MANHATTAN, KANSAS, SATURDAY, FEBRUARY 6, 1892.

NUMBER 23.

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Applications for Farmers' Institute should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

PROGRESS OF THE STEER FEEDING EXPERIMENT.

BY PROF. C. C. GEORGESON.

OUR farmers and feeders have taken so much interest in the feeding experiment with steers which was begun here at the Station a couple of months ago, that it seems but their just due that they should be informed how the work is progressing. It will be remembered that we selected twenty-three-year-old steers, all grade Short Horns, and averaging about 1200 pounds. The object was to gain information on the following points; 1st, the value of shelter for feeding animals; 2nd, the feeding value of corn meal compared with ear corn; and, 3rd, the effect of a "Balanced Ration" compared with ear corn and corn meal.

To this end the twenty steers were divided into four lots of five each, one lot to be fed in the yard in the ordinary fashion, on ear corn and corn fodder, with no other shelter than a small shed erected for the purpose, open only to the south, and where they can go in and out at pleasure; and the other three lots to be tied up in the barn and fed as already mentioned.

The lots were divided November 19th, and put in their places; but to accustom them to their new surroundings they were all fed alike—on ear corn and corn fodder, until November 30th, when the experiment properly began.

The following brief tables will show the result of the feeding from November 30th, till January 25th, fifty-five days:—

LOT I.

FIVE STEERS, IN BARN, ON "BALANCED RATION."

Weight, January 25th,	6,982 lbs.
Weight, November 30th,	6,104 lbs.
Gain in 55 days,	878 lbs.
Average daily gain per head,	3.2 lbs.

FEED CONSUMED, AND COST OF SAME.

Corn meal, 3,592 lbs., at 55 cents per cwt.,	\$19 75
Shorts, 1,576 lbs., at 54 cents per cwt.,	8 51
Bran, 600 lbs., at 40 cents per cwt.,	2 40
Oil Meal, 635 lbs., at \$1.35 per cwt.,	8 57
Hay, 362 lbs., at 25 cents per cwt.,	90
Corn Fodder, 455 lbs., at 12½ cents per cwt.,	56
Total cost of feed,	\$40 69
Cost per pound of gain,	4.61 cents.

LOT II.

FIVE STEERS, IN BARN, ON CORN MEAL AND CORN FODDER.

Weight, January 25th,	6,526 lbs.
Weight, November 30th,	6,055 lbs.
Gain in 55 days,	471 lbs.
Average daily gain per head,	1.7 lbs.

FEED CONSUMED, AND COST OF SAME.

Corn Meal, 5,480 lbs., at 55 cents per cwt.,	\$30 14
Corn Fodder, 1,128 lbs., at 12½ cents per cwt.,	1 40
Total cost of feed,	\$31 54
Cost per pound of gain,	6.69 cents.

LOT III.

FIVE STEERS, IN BARN, ON EAR CORN AND CORN FODDER.

Weight, January 25th,	6,684 lbs.
Weight, November 30th,	6,077 lbs.
Gain in 55 days,	607 lbs.
Average daily gain per head,	2.2 lbs.

FEED CONSUMED, AND COST OF SAME.

Ear corn, 6,765 lbs., at 47 cents per cwt.,	\$31 79
Corn Fodder, 2,530 lbs., at 12½ per cwt.,	3 16
Total cost of feed,	\$34 95
Cost per pound of gain,	5.76 cents.

LOT IV.

FIVE STEERS, IN YARD, ON EAR CORN AND CORN FODDER.

Weight, January 25th,	6,726 lbs.
Weight, November 30th,	6,123 lbs.
Gain in 55 days,	603 lbs.
Average daily gain per head,	2.2 lbs.

FEED CONSUMED, AND COST OF SAME.

Ear Corn, 7,280 lbs., at 47 cents per cwt.,	\$34 21
Corn Fodder, 2,797 lbs., at 12½ cents per cwt.,	3 49
Total cost of feed,	\$37 70
Cost per pound of gain,	6.25 cents.

There are some points to be noticed in detail, and one of these is the cost of feed. The corn so far fed was bought in the ear at from 30 cents to 33 cents per bushel of 70 pounds, or 47 cents per 100 pounds. We shall still need more, and it appears

likely that future purchases will cost a little more. I have therefore put the figures at 33 cents per bushel. This corn in the ear will shell out, as has been ascertained by trial, a fraction over 60 pounds to the bushel, enough more than 60, in fact, to pay for the grinding, and the corn meal is therefore calculated at this rate to be worth 55 cents per 100 pounds.

The shorts and bran were bought in car load lots at figures, which, with the added freight, bring the cost per 100 pounds as stated in the ration of lot I. The oil cake cost \$27 per ton, laid down in Manhattan.

The corn fodder is simply stover, or cornstalks cut up when the corn was ripe. When dry the corn was husked and the stalks saved for feed.

As to the method of feeding and weighing, the utmost care is exercised to avoid mistakes. They are fed and watered twice a day; and for the three lots in the barn, both feed and water are weighed out to each steer each time. The aim is to give them enough of the grain feed to satisfy their appetite without waste; but if any is left, as there usually is, it is weighed back and deducted from the amount fed.

A table hangs in front of each lot on which each steer is credited with his ration while the scale beam is still vibrating. They are watered from buckets in the stalls, and the weight of water each takes is in like manner recorded.

The lot in the yard, being loose, cannot be fed individually, so the corn is weighed for the lot as a whole, and having access to water, no account can be kept of the amount they drink. Salt is given to all of them in small doses at stated intervals.

To keep track of their gain, they are weighed every Monday morning after they have eaten the morning feed, but before they are watered, each steer stepping on the bullock scale in his turn. A daily record is also kept of the temperature, both in the stable and in the yard. In short, no trouble is spared to make the figures faithful representatives of the facts. It should further be noticed that, with the exception of two weeks, the weather has so far been very favorable to out-door feeding, so the lot in the yard has been more favored in this respect than is usually the case; while the three lots tied up in the barn, none of them ever having been tied before, were for several weeks under considerable disadvantage from this enforced confinement. It should be added that when it does not storm they are left out for exercise an hour or two daily, at noon.

Finally, I would emphasize the fact that these figures are not offered as at all conclusive, but merely as a report of progress. I therefore offer no comments on them. The steers will be fed as long as they make profitable gains, and it is quite likely that the order of gain, and cost of gain may be materially changed before they are sold. Only a few weeks ago Lot II. had made the cheapest gain per pound, but of late they have not done so well; but viewing the facts as they stand, even at this stage, they are doubtless of interest to many farmers and feeders.

BE NOT ONLY GOOD, BUT GOOD FOR SOMETHING.

BY LOUISE DALY, '93.

WILL CARLTON has said:—

"Some men are born for great things,
And some are born for small;
And some it is not recorded
Why they were born at all."

The last part of the above quotation is likely to be quite applicable to every one of us if we do not keep the heading of this article continually before our minds.

Fellow students, we are in the golden period of

our existence, where life seems tinged with a rosy hue, where we think little about what the future may have in store for us, but are content with the living present. This is not going to continue always, but soon we shall go from here to the stern realities of life.

Most of us here have about forty years yet to live. In these we may try to make most or least of ourselves. And life will mean much or little to us in proportion to the way we use our time here. In other words, "We shall reap as we have sown." We turn with a careless shudder from looking upon the failures of men in the world, and will not for a moment allow ourselves to think that at the close of our lives, above our page of history will be written in bold letters, "Failure."

I believe it is right to court only success, and to look ever on the bright side of life; but, while so doing, we may well remember that our lives will be what we have planned to make them.

At this college we have ample room to find what we are good for; and if we find that we are equally good at several things, while really not good at anything, is it not safe to conclude that something is wrong?

In the first case the student is forgetting to do well what each day finds for him to do, and is therefore cultivating the habit of not taking pains, which will unfit him to do anything perfectly.

In the other, the student has not yet found what he is really best adapted to, and therefore is wasting time that might be better applied elsewhere: if at last he does find what he is good for, it may be too late in life to accomplish what he has mapped out.

It is not required in these United States, teeming with millions of men and women, that each one should be a "Jack-of-all-trades." "Be a master of one," is our country's call, and for such she always has a place ready.

Our great men and women of the past have not reached success at a single bound, but rather by patient and earnest toil. Many of them had fewer opportunities than we have, and very likely their paths were strewn with the same kind of roses as ours are; but they either had force in reserve, or made it for the emergency, to enable them to overcome their difficulties. We can do the same if we faithfully do the part that lies before us.

Even if you get that provoking 69 per cent in a study, and feel that the professor is "down on you," and that life is all a burden, just straighten up, shake off that feeling, take heart again, apply yourself with renewed energy, stick to it, and you'll win.

As we go out from college we naturally fall into the pursuits of people already working in the world, and as we all have about the same amount of energy to exert in the next forty years, should it not be a question with us, Where can this energy be best applied? I believe you all agree that it is in doing that for which you are best adapted. Is it not our right and duty to find out in what way we can be of most use in the world, and then do our part as well as we can?

Then we will have been not only good, but good for something.

IS IT PRACTICAL?

BY JESSIE M. STEARNS, '93.

IN this busy world of to-day, all schemes must answer the question, "Is it practical?" In science, religion, literature, education, and politics we look at the results accomplished. They must be useful or they are discarded by the hurrying, restless crowd. Before accepting what science and religion teach, we ask, "Of what use to us are their laws?"

The plans of the dreamer and laborer alike are brought to a common level. The one may sit in

his library, working out, in a world of his own, the future destiny of nations; while the other may be solving the problem of his daily existence. When the dreamer gives to the world his method of bettering the existing state of affairs, and of avoiding errors in the future, so that we shall ever have a prosperous and contented people, at once the reading, thinking public asks the questions: Has he judged human nature correctly? Is our world and his brain-world enough alike to make the plan available? And would it be wise to adopt such a scheme? If it cannot stand the test it is laid one side with the curt, yet death-dealing criticism, not practical. So with the laborer; his plans must in some degree at least be other than theories, if he would at all succeed. If they are not, he becomes one of that vast army of tramps whose plans to them are useful enough to compel others to furnish the means for their support.

Parents, whose sons and daughters are to be educated, ask that the college training be practical. For girls is this especially true. Where in the past was found the seminary for finishing their education in two or three years, today the colleges all over our land are giving them equal chances with their brothers in helping them to better solve the problem of self-support. Today, instead of finishing their education, the colleges can, in that length of time, merely open the doors to the vast store-house of knowledge, if any one of which be entered the student will find a life-long study; but only time enough for a fleeting glimpse can be allowed to each.

Different colleges and universities, of course, answer this question differently, according to the individual needs of the would-be students. What would suit one might not do at all for the other; yet each in its own way is useful, or else fails in its purpose. And today, as never before, the demand is for an education that shall make a better poised, more evenly balanced, practical people, quick to change, if necessary, otherwise firm and unyielding.

In the political world as nowhere else is the question of practicability to be answered. When new parties spring up to redress the wrongs that have been steadily increasing and growing worse instead of diminishing and disappearing, they must not have mere theoretical schemes for the betterment of mankind, but something that is sensible and reasonable. History gives examples where this principle has been disregarded, and pictures the suffering and ruin that have been caused by a few who had power enough to sway the people for a short time.

With the world before us, presenting a field for action that grows broader and wider as the world grows older, whatever best answers in the affirmative the question "Is it practical?" will be the most readily accepted and produce the most beneficial results.

THE LARD KETTLE.

BY PROF. NELLIE S. KEDZIE.

ONE of the memories of childhood is connected with my grandmother's lard kettle which she used to hang upon the crane in the fireplace whenever she used to fry doughnuts. The older cousins used to get grandmother off to visit the neighbors, and out would come the lard kettle. It would be heated, corn shelled and poured into the hot lard by the handful, when it would pop, flying out into the room or rising to the surface of the fat in great white puffs of delicious eatables which only need the addition of salt to make them the most desired of all the goodies ever childish stomachs craved. Of course we ruined the lard; we took no care to prevent its scorching, and we neglected to strain it carefully every time it was used. Grandmother would use the fat until it was nearly all gone

because of the care she took of it. Following in our grandmother's footsteps, we can do on the stove what she did over the fire and kettle for frying. Olive oil or lard, or a mixture of lard and suet, may be kept in a wide-mouthed kettle, and for cooking almost everything that needs to be very quickly browned over, the hot fat gives the very best process. From frying doughnuts to popping corn there is no way so good as this real frying.

In the meat line, pork chops; veal cutlets, whether breaded or not; croquets; oysters, covered with egg and bread crumbs and allowed to stand a half hour before frying, to dry the case of crumbs so it will not fall in pieces; fish and chickens; potatoes; also fritters, and all kindred "made foods" that need quick cooking, all come to the table in a more delicious state after being cooked in the hot fat than in any other way.

The fat must be hot enough to at once sear the surface, preventing absorption of the grease. If properly done, the article will not be greasy, and in no management of the kettle can it be made to absorb so much fat as it will take up if cooked in a frying pan with a small quantity of grease.

Every time the "lard kettle" is used the contents should be strained when cool enough to handle safely, and the few crumbs in the bottom of the kettle being washed out, the fat may be poured in and the kettle, with a cover on it, be hung away. It is ready to set on the stove at any time, and will save many minutes of time, as well as give more wholesome and palatable dishes in all the list of fried articles. Our grandmothers did not have so many conveniences as we find today, but they learned many things about food that we do well not to forget.

THE VALUE OF AN EDUCATION.

BY WARNER POPE, '92.

"WHAT shall I make of myself?" is a question asked by most beings who wish to become good citizens. Ambition to have power does not belong to a select few, alone, but it is inherent in every man. The ragamuffins and boot-blacks that skirmish for a few pennies in order to live, expect a brighter future; in fact, this hope of a brighter day is the inspiration of life. It is the north star that guides the ambition, which lifts the insignificant lad to the foremost position of honor and responsibility.

Now what are the best means for approaching our ideal? Lay a foundation, upon which you can build the future hopes of wealth and happiness. To do this, get an education, one that is practical, one that will make the mind firm and strong, so as to be able to go through the intellectual gymnastics of the business world.

We are not all born with great minds. In fact the number of men with powerful minds in every age can be counted on the fingers. Then why will some men expect educational institutions to grind an ignoramus into an Edison or a Gladstone? Yet this is the opinion some men hold. They say to their sons and daughters, "Don't make an educated fool of yourself; enter into some line of business and be a man or woman of horse sense." The need of to-day is not the need of one hundred years ago. The Abraham Lincoln of today can not sprout and grow like the sunflower on Kansas soil, as the Abraham Lincolns have done in time past. He must be up with the times; and to be up with the times, means to get an education.

The colleges of the country will take any kind of a person and polish him up, till he shines according to his ability; but if he doesn't shine with a light of two thousand candle power, don't blame the institution.

A man does not always have to go to college to get an education. But those of us that have no rich fathers, aunts, or uncles to give us, or get us, a fat job in a bank or an office, will find the college the best place to scour off the rust and shape our mind into a sharp-edged tool.

CALENDAR.

1891-92.
Fall Term—September 10th to December 18th
Winter Term—January 5th to March 25th.
Spring Term—March 28th to June 8th.
June 8th, Commencement.
1892-93.
Fall Term—September 8th to December 16th.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan.

LOCAL MATTERS.

Mid-term examination comes next week.

Dr. Mayo was called to Cleburne on Monday on veterinary business.

Mr. J. Van Everen donates to the Museum a large natural graft of oak.

F. O. Popenoe, of Topeka, visited with his brother, the Professor, on Wednesday and Thursday.

The Alhambra Mandolin Concert Company, of Topeka, visited the College in a body yesterday afternoon.

Mr. W. B. Lloyd, editor of the *Farm, Field, and Stockman*, of Chicago, writes an interesting account of his recent visit to this College.

Miss Lilla A. Harkins, Professor of Household Economy in South Dakota Agricultural College, spent several days here this week on her return from California.

Tuesday was an ideal "ground-hog day"—for the hog. Judging from present indications, with snow falling at the rate of something less than an inch an hour, the old fellow will have ample time for cogitation before he again seeks the sunlight.

This time it is Professor Mason who is called. He has the tender of the Chair of Horticulture in Texas Agricultural College, at a salary of \$1,500, with house; but on the supposition that he will soon be better rewarded for his labor here, declines.

Assistant Entomologist Marlatt has a fine collection of negatives from which he is printing photographs of insects of various kinds for use in illustrating forthcoming bulletins of the station. The prints appear to be well-nigh perfect, and will make good copy for the engraver.

In the public lecture, yesterday afternoon, President Fairchild treated the subject of "Coin and Currency." The history of coinage was traced from the time of the ancients to its perfected condition of today. Many interesting facts concerning the country's monetary system were presented in an attractive way.

The Museum has received a fine golden eagle from F. V. McCord, of Manhattan, and through Mr. Wm. Morrison a specimen of the diamond backed, or edible, terrapin from J. B. McNeal, of Baltimore, Md. The specimens (Virginia deer, wild turkey, and opossum) collected by Secy. Graham and Mr. Breese have been mounted, and are awaiting a place in the case.

The Manhattan Horticultural Society will meet in Horticultural Hall, Thursday, Feb. 11th, at 2 o'clock p. m. Officers will be elected for the ensuing year. The programme will be as follows: "Winter Work for the Horticulturist," W. J. Griffing; "Preparing and Planting Hotbeds," Wm. Baxter; "Strawberry Notes from the College Grounds," S. C. Mason; "Experience with Strawberries in Manhattan," Wm. Shelton.

The Fifth division of the Fourth-year class, eight in number, delivered orations in chapel on Friday afternoon of last week. Speakers and topics follow: F. C. Sears, "Plea for an Independent Interest in Politics;" May Secrest, "The Farmer's Wife;" W. P. Tucker, "Protection and Free Trade;" Alice Vail, "Schools for Reform of Children;" D. F. Wickman, "A Question of Descent;" Ora Wells, "Storm and Calm;" C. E. Yeoman, "True Citizenship;" G. W. Wildin, "Who am I, How did I get here, What am I here for?"

GRADUATES AND STUDENTS.

M. A. Carleton, '87, the newly elected assistant in Botany, is expected next week.

J. R. Shannon, Second-year in 1887-88, works at his trade in Lincoln, Nebraska.

Mr. John Paul, of Waterville, visited yesterday with his son, C. H. Paul, a Second-year student.

Grant T. Kelsey, student in 1886-7, is married and is employed as head clerk in a grocery store in Topeka.

H. A. Shannon, Second-year in 1887-88, is employed in the United States Internal Revenue Office at Omaha, Neb.

S. L. Van Blarcom, '91, has been assigned to permanent work in the mail service operating over the Santa Fe lines in Kansas.

A. H. Greeley, Third-year in 1888-89, sends Mrs. Kedzie a twenty-five-pound box of raisins of his own growing. They are of fine quality.

Abbie L. Marlatt, '88, writes from Utah Agricultural College of feeding sixty-eight visiting legislators to their entire satisfaction on very short notice.

F. A. Waugh, '91, declines a recent offer of the associate editorship of the *American Agriculturist*, to continue his work on the agricultural department of the *Kansas Weekly Capital*, "with an increase of salary and brighter prospects all around."

THE HAMILTON EXHIBITION.

The Fifth Annual Exhibition of the Hamilton Society, held last Saturday evening, gave its many friends an opportunity to see again what the Society is doing. If one may judge from the favorable comments, no one was disappointed. Pres. Wildin, in a short speech, gave an outline of the history of the Society and its outlook for the future. The opening address, "A Protest against State Paternalism," was discussed by Arthur D. Rice, and was well worth the careful attention which the audience gave it.

The question, "Would it be desirable for the Protestant churches of the United States to apportion their religious work?" was argued on the affirmative by W. E. Smith, and on the negative by E. C. Abbott. Both speeches showed careful preparation, and both sides were well argued.

The debate was followed by a quartette, "Eggs for Your Breakfast in the Morning," which brought down the house.

An oration, "A Nation's Hero," by R. L. Wallis, was a tribute to Alexander Hamilton, for whom the Society was named.

The Recorder, the Society paper, was presented by F. R. Smith. The paper was excellent, and was exceptionally well read; Mr. Smith is to be congratulated.

A waltz, by the Hamilton orchestra, was followed by a declamation, "The Forgotten," by J. H. Persinger, which was well delivered.

The closing address, "Patriotism," by I. B. Parker, was in keeping with the rest of the programme.

A quartette, "Speed Away," closed the programme, and the audience dispersed, feeling that the Hamilton Society is doing good work in the College.

THE WEATHER FOR JANUARY.

BY PROF. E. R. NICHOLS.

The mean temperature for January 1892 was 22.25°, which is 2.9° below normal. There have been twenty-one warmer, and eleven colder, Januaries, the extremes being 38.3°, in 1858, and 12.35° in 1886. The cold was confined to the second decade, the mean being 4.15°; while for the first it was 23.78°, and for the third, 37.32°. The highest temperature for the month was 60°, on the 31st; the lowest, 26°, on the 19th; a monthly range of 90°. This is the lowest on College records, being equalled only in 1888. The cold spell of 1888 was much more severe than that of the past month. The warmest day was the 31st, the mean being 54.50°; the coldest was the 12th, the mean being -8.50°. The greatest range in one day was 46°, on the 16th; the least, 10°, on the 17th. The mean of the observations at 7 A. M. was 13.1°; at 2 P. M., 34.03°; at 9 P. M., 20.94°. The mean of the maximum was 37.29°; of the minimum, 10.39°; the mean of these being 23.84°.

The mean barometer for the month was 29.012 inches, which is .15 inch above normal. The maximum

imum was 29.364 inches, at 7 A. M. on the 12th; the minimum, 28.495 inches, at 2 P. M. on the 5th; a monthly range of .869 inch.

There were fourteen cloudless days; two entirely cloudy; four more than two-thirds cloudy; five more than one third cloudy; and six less than one-third cloudy. The total amount of rain and melted snow was .776 inch, which is slightly below normal. The rain of the evening of December 31st ended in snow on the first, followed by snows on the 4th, 10th-11th, and 17th-18th.

The wind was from the southwest twenty-nine times; northwest, eighteen times; north, fifteen times; east, seven times; south, six times; north-east, three times; south-east, three times; west, twice; and a calm ten times at the hours of observation. The total run of wind for the month was 6517 miles, giving a daily mean of 210.23 miles, and an hourly mean of 8.76 miles. The highest daily velocity was 460 miles, on the 1st; the lowest, 31 miles, on the 2nd. The highest hourly velocity was 29 miles, between two and three on the afternoon of the 31st. Below will be found a comparison with the preceding Januaries:

January.	Number of rains.	Rain in inches.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	4	2.50	SW	38.30	59	-3			
1859	4	1.50	SW	31.03	70	-6			
1860	1	.60	SW	29.97	70	-6			
1861	3	1.35	SW	23.61	60	-9			
1862	3	1.50		18.03	42	-6			
1863	3	1.47		36.52	69	-4			
1864	3	.44		23.17	60	-13			
1865	2	.33		27.04	49	-5			
1866									
1867	3	.65		22.57	47	-12			
1868	3	.31		18.15	61	-12			
1869	3	1.15		30.46	54	9			
1870	3	.05		27.35	58	-3	28.79	29.30	27.90
1871	4	.53		28.85	62	-7			
1872	3	.13		24.90	51	-8			
1873	3	.84		19.66	49	-14			
1874	2	.50	SW	26.41	60	-4	28.72	29.33	27.95
1875	3	.22	NW & SW	14.87	48	-17	28.89	29.43	28.42
1876	0	.00	SW	33.85	62	-6	28.82	29.37	28.30
1877	2	.46	SW	25.20	64	-10	28.97	29.55	28.38
1878	6	2.35	NW	33.09	55	0	28.76	29.25	28.41
1879									
1880	3	.56	S&SW	37.82	61	15	28.55	29.10	28.05
1881	4	.55	SW	19.55	49	-18	28.70	29.19	28.10
1882	4	.42	SW	31.64	60	-1	28.72	29.23	28.20
1883	3	.25	SW	18.02	55	-15	28.78	29.14	28.08
1884	1	.30	SW	21.46	63	-22	28.78	29.30	28.20
1885	4	1.08	SW	16.27	44	-18	28.68	29.10	28.00
1886	5	1.36	NW	12.35	51	-19	29.01	29.50	28.53
1887	4	.68	SW	22.05	62	-23	28.92	29.56	28.26
1888	2	.65	N	15.42	63	-26	29.24	29.86	28.60
1889	3	.78	N	27.84	53	-1	29.03	29.39	28.44
1890	5	2.31	NW	23.10	62	-19	29.04	29.55	28.40
1891	4	1.63	NW	29.44	57	-2	28.97	29.33	28.47
1892	4	.78	SW	22.25	64	-26	29.01	29.36	28.50
Means	3.2	.86	SW	25.15	57	-9.4	28.86	29.36	28.27

WIND RECORD.

January.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1890	5980	192.9	419	64	8.04	28
1891	6842	220.7	691	79	9.20	56
1892	6517	210.2	460	31	8.76	39

COLLEGE ORGANIZATIONS.

Student Editors.—B. H. Pugh, F. C. Sears, May Secrest.

Webster Society.—President, F. C. Sears; Vice President, E. W. Reed; Recording Secretary, R. C. Harner; Corresponding Secretary, E. M. S. Curtis; Treasurer, F. W. Ames; Critic, L. S. Harner; Marshal, T. W. Morse.

Alpha [Beta] Society.—President, May Secrest; Vice President, J. B. Thoburn; Recording Secretary, C. H. Thompson; Corresponding Secretary, Ivy Harner; Treasurer, Fred Hulsey; Critic, Grace Clark; Marshal, Stella Kimball.

Hamilton Society.—President, G. W. Wildin; Vice President, J. H. Persinger; Recording Secretary, L. Olmstead; Corresponding Secretary, C. R. Hutchings; Treasurer, W. O. Staver; Critic, A. D. Rice; Marshal, R. B. Abbott.

Ionian Society.—President, Ora Wells; Vice President, Mary Lyman; Recording Secretary, Harriet Dodson; Corresponding Secretary, Elsie Crump; Treasurer, ———; Critic, Effie Gilstrap; Marshal, Fannie Cress; Directors, Ora Wells, Maude Knickerbocker, Phoebe Turner.

January 29th.

The Ionian Society was called to order by Pres. Wells. After singing and devotion, the roll was called to which nearly all the members responded. The programme was opened by an instrumental solo by Marie Haulenbeck. Miss Turner gave a select reading, "What I know about gardening." The weekly edition of the Oracle was presented by Ida Staver. The debate was next in order. The question, "Resolved That the dish-rag is of more importance in the household than the broom," was argued on the affirmative by Elsie Crump and Ida Pape, and on the negative by Verta Cress and Mable Selby. The judges, Misses McCormick, Vail and Corbett decided unanimously in favor of the affirmative. Lynn Hartley presented the news of the week, after which a quartette consisting of Bertha Spohr, Verta Cress, Mable Selby, and Fanny Cress, sang "Old Mother Hubbard". This closed the programme and after the usual routine of business the society adjourned.

E. C.

Jan. 29 1892.

The Scientific Club was called to order by President Mason; the minutes of the previous meeting were read and approved. Under new business the enrollment by sections was read and a

cordial invitation was given each member to join at least two sections. The program of the evening was taken up. Dr. Mayo gave us a very interesting talk on the Fauna of Colorado, his talk being based upon the collecting trip which he and Prof. Failyer made to Colorado, during the holidays. He gave a brief description of the parts of Colorado where elk are found, and the difficulties of obtaining them. They can only be hunted successfully in winter when the deep snows drive them down from the mountains. They are hunted on horses and snow shoes. After finding a herd of elk the hunter gets into the trail they make through the deep snow and runs his horse till he catches them, as they are unable to run very fast.

The relation of the elk to the moose caribou and common deer was outlined and some of the principal differences given. The difficulties encountered in getting into the elk region were briefly given—the principal ones were the deep snows and fording the streams. Other kinds of large game—deer, bear, and mountain lion,—and the various methods of capture, were briefly mentioned. The wanton slaughter of elk for their skins by hunters was also mentioned, and the laws which bear upon this. A great many interesting questions were asked, and the subject discussed pro and con.

The President called upon Prof. Hitchcock for a description and notes on a trip to the West Indies. He first visited the Bahamas, Jamaica, and Grand Cayman in a private yacht. Spent a time at Nassau, the chief city of the Bahamas; Eleuthera, noted for the pineapples; Cat Island, supposed to be the San Salvador of Columbus,—Watling's Island more likely. He told us of Crooked Island, a resort of the pirates in the 17th century, where he found old cannon and French wells which told very plainly of their work. Large quantities of salt are produced on the Fortune Island. Inagua is the most southerly and one of the largest. In Jamaica the scenery is beautiful and the climate healthful. The fruits are custard apple, banana, orange, coconut, bread-fruit, and pawpaw. He gave a description of the growth and manner of cooking the bread-fruit by the natives. The starchy foods of the island are the yam, sweet potato, and cassava. A garden of yams ten feet square will supply one family a year. The woods which he found were log-wood, fustic, silk-cotton tree, and mahogany. A great many questions were asked about this interesting country. This closed the programme. Adjournment.

LOTTIE SHORT, Secretary.

LABOR AND EDUCATION.

There is inspiration in the thought that our great men and women were not born so, but were made, and that by their own efforts. They were ordinary boys and girls, surrounded by circumstances that were not conducive to a life of leisure. On the contrary, many of them at an early age were earning their own living and helping toward the support of the family. This early experience in the school of life was of great benefit, for it taught them, as nothing else could, the value of an education. Many brave boys and girls, after toiling all day, have spent hours of the night in storing their minds with the knowledge they so much craved; have studied as they worked; and in any way they could, got learning.

The thought should make those who have good opportunities for education, which they have not used, hang their heads in shame. These working boys and girls have made noble men and women, and the lessons learned in the hard school of experience have borne fruit in the great good they have been able to accomplish. When we see of what use they are to the world we can but feel that their lives were worth the struggle, and we realize how much of beauty, dignity, and greatness, labor imparts to learning.

Kansas is an ideal fruit country. In eight years of residence in this State, I find five-eighths of the seasons have given us a good yield, the last three an abundant one of peaches. Hundreds of bushels rotted under the trees last Summer, so immense was the crop. Apricots and pears, apples and plums, only ask for an opportunity to grow and produce after their kind, to surprise the world by their size and flavor. Cherries, last year, loaded every tiny cherry tree. All of the small fruits, especially strawberries, do admirably here.—*Cor. Orange Judd Farmer.*

This new year comes in laden with good resolutions, bright hopes, and cheering prospects, full of rays of promise; and time seems more precious than ever before, for we begin to realize how fast it is going and how little there is left for us. The words of the old maxim, "Improve your time," should be engraved upon the mind of every boy and girl, every young man and woman, and be so solemnly impressed that not one moment of precious time shall be lost. We have such grand opportunities to-day of making the most and best of ourselves. Our public schools are perfect in every detail, and for those who cannot avail themselves of a College education, we have systems of home study like the Reading Circle Courses within the reach of all. Great possibilities, wide reaches of thought, are open to us, and as we come into touch with other minds and with the world, our field of work will be broadened, our scope of vision widened, and we shall grow to the stature of true men and women; and these are the great ones.—*Farm, Field, and Stockman.*

KANSAS EDUCATIONAL NOTES.

PROF. J. D. WALTERS.

It must be quite a relief for President Quayle, of Baker University, to hear that he is no longer the youngest college president in the United States.

There never was a time in the history of our State when so many people were giving attention to matters of education. Almost every city and town has a lecture course. A great number of university extension courses are being taken. Altogether the work that is being done is a great credit to the State and to the people.—*Newton Republican.*

Judge E. P. West, of Lawrence, died Tuesday of last week. He had for six years been connected with the Kansas University as collector and preparator of Kansas fossils. During those years he gathered a magnificent geological collection, now in the University museum. Judge West was Assistant Attorney General of New Mexico, under Grant, and practiced law in Kansas City for many years. He was well known in the State.

Five or six of the most prominent athletic, literary, and social students of the State University were suspended for three months, recently. The young men were suspended for gambling. We commend the action of the Faculty, and glory in the impartiality and determination they have exhibited in dealing with this vice. The proportion of dissolute and disreputable students at K. S. U. is not large, and this lesson will be a wholesome one.—*Baker Index.*

Dr. Quayle, President of Baker University, at Baldwin City, Kansas, has arranged for a course of lectures to the students of the University for the current year. The lectures already announced are: Dr. O. S. Munsell, of Council Grove; Dr. Schuyler, President of Kansas Wesleyan University; Chancellor Snow, of the State University; Judge Emory; Prof. J. M. Greenwood, Superintendent of schools, Kansas City, Mo.; and Dr. C. H. Paine, General Secretary of Education of the Methodist Episcopal Church.

The Southeast Kansas Teacher's Association has made a new departure, and will have an oratorical and elocutionary department, offering \$25 for first, and \$15 for second, prizes in each department. The next meeting will be at Chanute from March 24th to 26th. Each county in the Southeast Kansas Teachers' Association district will be entitled to send one contestant in oratory and one in declamation. The contestant must have attended school in the county for the past two years. In declamation, the contestant will be graded on conception of piece, vocal delivery, facial expression, or grace of delivery. Orations will be graded on originality, thought, grammatical and rhetorical structure, expression, vocal delivery, conception, and grace of delivery. The names of contestants in oratory will be withheld, and be known only by number.

The classification of the Indian Service will go into effect March 1st. On and after that date positions in that service can be obtained only after examination by the Civil Service Commission. There will be five grades of examination; viz., physicians, superintendent, assistant superintendent, teacher, and matron. The salaries of physicians are from \$1,000 to \$1,200 a year, superintendents \$1,200 to \$2,000, assistant superintendents \$1,000 to \$1,500, teachers \$720 to \$1,200, and matrons \$500 to \$720. Persons desiring to enter the service in any of the grades named are required to file applications on blanks which can be obtained without cost by writing to the U. S. Civil Service Commission, Washington, D. C. With every application blank there will be sent a pamphlet showing when and where examinations may be taken, giving the list of subjects of the examinations, and containing other information. Although the Commission has been giving these examinations far the past six months, so far the eligibles is not equal to the demand. Examinations for this State are held at Salina, March 17th; Colby, March 19th; Garden City, May 5th and October 27th; Wichita, October 29th; Topeka, November 3d. Examinations at Kansas City, Mo., March 26th and November 5th.

Mrs. Sam Wood has been elected a member of the Executive Board of the State Historical Society, to fill the vacancy caused by the death of her husband. She is the first woman ever honored with such a position in Kansas.

The State Historical Society was founded in 1875 by George A. Crawford, Milton W. Reynolds, Samuel A. Kingman, E. P. Baker, John A. Martin, Salmon S. Prouty, Richard B. Taylor, and Noble L. Prentiss. Four of the eight who attended the first meeting, and five of the six who signed the charter, have died.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

GROCERIES.

F. R. HOPSON & CO., Dealers in Staple and Fancy Groceries, Country Produce, etc. Fruits in their season a specialty. 223 Poyntz Ave.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, jewelry, and Gold Specacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silverware, Spectacles, Clocks, Fountain Pens, Gold Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the Photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequaled for beauty of finish.

BOOTS AND SHOES.

REHFELD'S SHOE STORE.—It is a subject of common remark that Rehfeld's prices on first-class Boots and Shoes are astonishingly low. And they are, too, for proof of which you have only to call. Special bargains at nearly all times.

REBATE TICKETS given on all cash sales. For tickets amounting to \$5.00 you will be presented with one of three books, "Success," a record of the lives of noted men; "The Home Guide," or "Compendium of Cookery." Reliable Boots, Shoes, and Rubbers. Latest styles and low prices. LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

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